ORDER NO. MB9104012C2

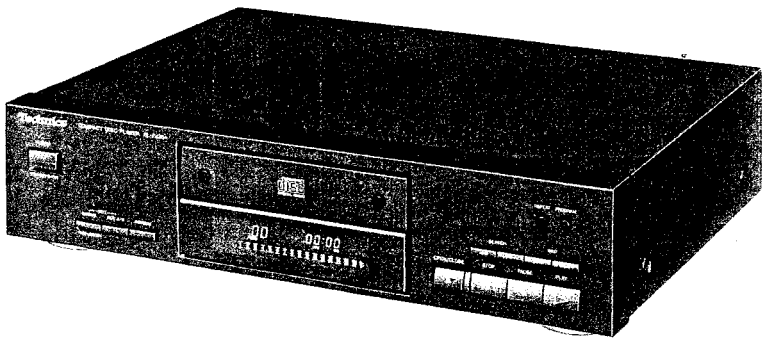
# Service Manual

Compact Disc Player

# SL-PJ28A

COMPACT disc DIGITAL AUDIO

DIGITAL



**Color**

(K)... Black Type

**Area**

| Country Code | Area | Color |
|---|---|---|
| (E) | Continental Europe. | (K) |
| (EB) | Great Britain. | (K) |
| (EG) | F.R. Germany & Italy. | (K) |

## SPECIFICATIONS

■ **Audio**

| | |
|---|---|
| No. of channels | 2 (left and right, stereo) |
| Frequency response | 2–20,000 Hz±0.8 dB |
| Output voltage | 2 V (at 0 dB) |
| Dynamic range | 92 dB |
| S/N ratio | 96 dB |
| Total harmonic distortion | 0.01% (1 kHz, 0 dB) |
| Wow and flutter | Below measurable limit |
| Output impedance | Approx. 600Ω |
| Load impedance | More than 10 kΩ |

■ **Pickup**

| | |
|---|---|
| Wavelength | 780 nm |
| Type | One beam |

■ **General**

| | |
|---|---|
| Power supply | |
| For Great Britain | AC 50/60 Hz, 230 V–240 V |
| For others | AC 50/60 Hz, 230 V |
| Power consumption | 10 W |
| Dimensions (W×H×D) | 360×85×280 mm |
| Weight | 3.2 kg |

**Note:**

Specifications are subject to change without notice.
Weight and dimensions are approximate.

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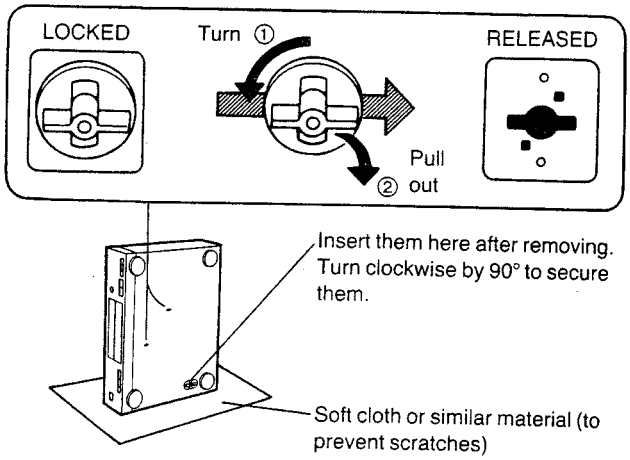
* TECHNICAL INFORMATION
* This technical information is located on pp 49~56 of the SL-PJ46A Service Manual (Order No. AD8902036C2). Therefore, refer to that Service Manual.

Technics

# ■ PLACEMENT

## Before placement

Two transport security devices are secured to prevent the optical pickup from damage during transport.
Be sure to release them before use.




**Note:**
When transporting the unit, be sure to remove the compact disc from inside the unit. And replace the transport security devices again following the reverse order not to damage the optical pickup.

## Notes of placement

■ **This unit is a precision instrument. Be sure to place it on a flat surface.**

■ **Avoid places such as the following:**

- Near any equipment or device that generates strong magnetism.
- On any heat-generating equipment or device, or in any place where the temperature is high (35°C or higher).
- Extremely cold places (5°C or below).
- Near a tuner or TV (It may cause noise in the broadcast, or disturbance of the TV picture.)

■ **When carrying or storing the unit, handle it with care so it is not subjected to any strong bumps.**
Always remove the disc before storing the unit for any period of time.

■ **To avoid problems due to vibration.**

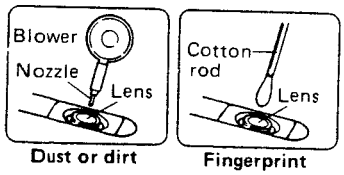
- Do not place a book or similar object under this unit.
- Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

# ■ CLEANING OF LENS

If the lens is stained causing sound skip or operation failure, open the top cover by pressing the open button, and clean the lens.

### • To remove dust or dirt

Blow the lens with the blower provided in the cleaning kit to remove dust or dirt.



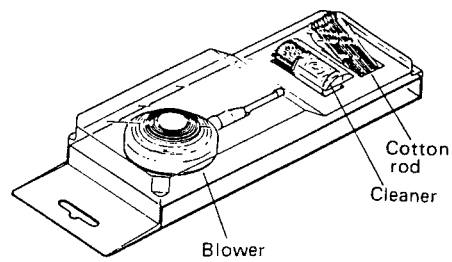

### • To remove fingerprint

If the blower is not enough, moisten the cotton rod with the lens cleaner solution and wipe the lens with it from center of the lens to outside.

**Cautions:**

- Do not directly apply the cleaner solution to the lens. Do not apply too much solution to the cotton rod or otherwise the solution will flow into the player.
- Wipe the lens carefully. Do not give too much stress to the lens or otherwise it may scratch the lens or cause optical pickup trouble.
- If the solution should be too much applied, wipe the lens with a dry cotton rod.

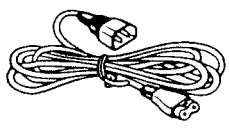
**Lens cleaning kit (Part No. : SZZP1038C)**

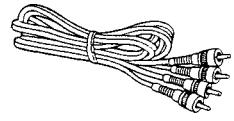


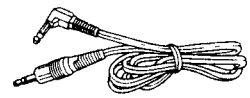

**Spare of cleaning kit (Cotton rod, Cleaner) (Part No. SZZP1050C).**

# ■ ACCESSORIES

- AC power supply cord (SFDAC05E03 (E, EG) / SJA188 (EB)) ..... 1 pc.
- Stereo connection cable (SJP2249-3) ..... 1 pc.
- L-type cable (SJP2257T) ..... 1 pc.







# PRECAUTION OF LASER DIODE

**CAUTION:** This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780nM
Maximum output radiation power from pick up: 100μW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

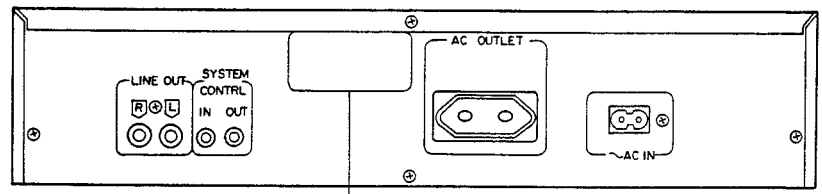
**ACHTUNG:** Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

Wellenlänge: 780 nM
Maximale Strahlungsleistung der Lasereinheit: 100 μW/VDE

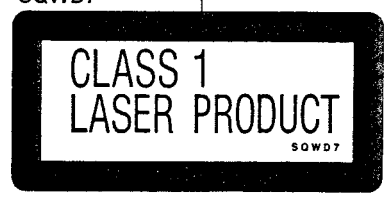
Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

**ADVARSEL: I dette a apparat anvendes laser.**

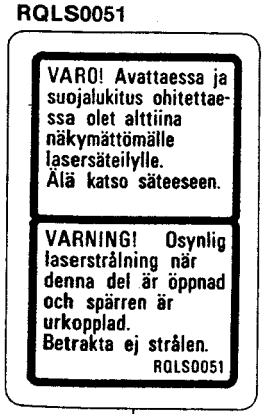


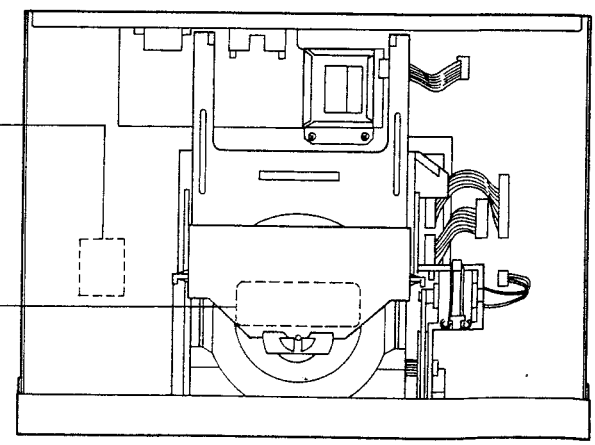

SQWD7



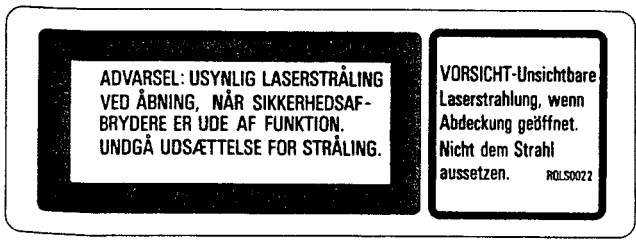

Obs:
Apparaten innehåller laser
Komponent av höger laserklass
än klass 1.

RQLS0051

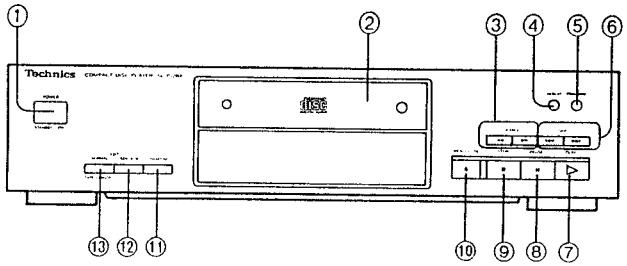

VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.
VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
RQLS0051

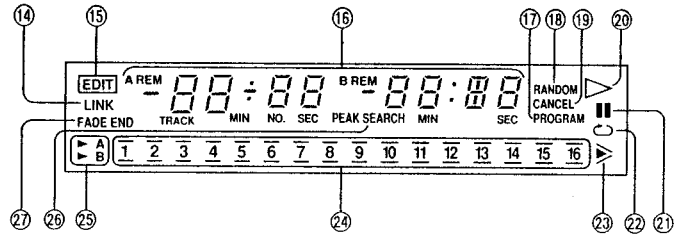


RQLS0022


ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen.
RQLS0022

# ■ LOCATION OF CONTROLS




## Control section

① **Power "STANDBY ⏻/ON" switch (POWER STANDBY ⏻/ON)**
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

② **Disc holder**

③ **Search buttons (◀◀ SEARCH ▶▶)**
These buttons can be used to move rapidly forward or backward on the disc during play. The search speed is slow when the button is pressed at first and becomes faster if the button is pressed and held continuously.

④ **Repeat play button (REPEAT)**

⑤ **Program button (PROGRAM)**
Pressing this button initiates the program play mode. You can then enter specific tracks using the skip buttons.

⑥ **Skip buttons ( ⏮◀◀ SKIP ▶▶⏭ )**
These buttons can be used to skip tracks and to specify the track number or the desired recording time.

⑦ **Play button (▷ PLAY)**

⑧ **Pause button (❚❚ PAUSE)**

⑨ **Stop button (■ STOP)**
This button can be used to stop the disc play, as well as to cancel the various play modes.

⑩ **Disc holder open/close button (⏏ OPEN/CLOSE)**

⑪ **Random play button (RANDOM)**
This button can be used to play the tracks on a disc in a random sequence.

⑫ **Tape side select button (SIDE A/B)**
When recording compact discs to tape, this button is used to switch the tape side for addition or cancelation of programmed tracks.

⑬ **Edit mode button (NORMAL, TAPE LENGTH)**
This button can be used to choose one of the edit modes or to specify the tape length to be used.

## Indicators section

⑭ **Link indicator (LINK)**

⑮ **Edit indicator (EDIT)**

⑯ **Multi-display**
This display shows the following information.
- Track number and elapsed play time of the current track.
- The number of tracks can be recorded on each side of the tape and the remaining time.

⑰ **Program indicator (PROGRAM)**

⑱ **Random play indicator (RANDOM)**

⑲ **Program cancel indicator (CANCEL)**
Illuminates when the programmed track can be cancelled.
(It can be operated only by the remote control transmitter included in the Technics tuner ST-X902.)

⑳ **Play indicator (▷)**

㉑ **Pause indicator (❚❚)**

㉒ **Repeat play indicator ( ↻ )**

㉓ **"Over" mark (⩥)**
This indicator lights if the total number of tracks on the disc is 17 or more.

㉔ **Track number indicator ( 1 – 16 )**

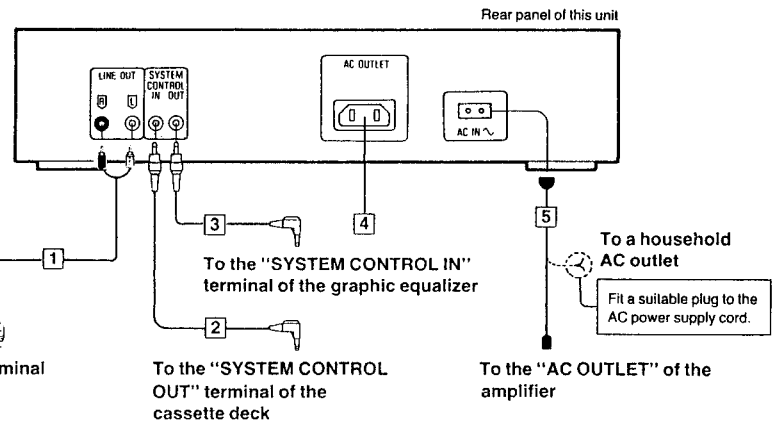
㉕ **Tape side indicator (▶ A, ▶ B)**

㉖ **Peak search indicator (PEAK SEARCH)**

㉗ **Fade end indicator (FADE END)**
Illuminates when the unit is normal edit mode.

# CONNECTIONS

Notes:
- Turn power off on all components before making connections.
- See the operating instructions of the tuner for details.


Rear panel of this unit
LINE OUT
SYSTEM CONTROL IN OUT
AC OUTLET
AC IN
1
2
3
4
5
To a household AC outlet
Fit a suitable plug to the AC power supply cord.
To the "SYSTEM CONTROL IN" terminal of the graphic equalizer
To the "CD" terminal of the amplifier
To the "SYSTEM CONTROL OUT" terminal of the cassette deck
To the "AC OUTLET" of the amplifier

**1 Stereo connection cable** (included)

**2 L-type cable** (included)
This cable can be used only with a Technics cassette deck having the appropriate "SYSTEM CONTROL OUT" terminal.

**3 L-type cable** (not included)
This cable is included to a Technics graphic equalizer having the appropriate "SYSTEM CONTROL IN" terminal.

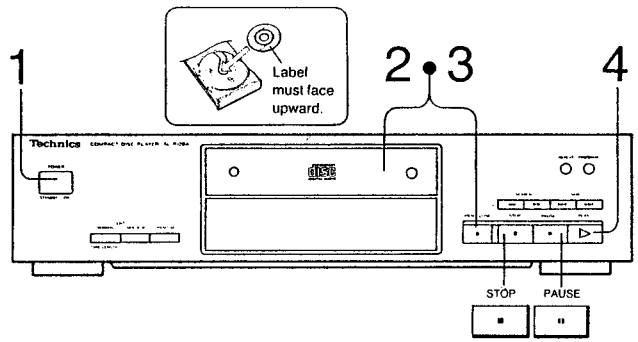
**4 "UNSWITCHED" outlet**
Power is always available, regardless of power switch. Audio equipment rated up to 50 W can be connected here.

**5 AC power supply cord** (included)
Note:
If the AC power supply cord is connected to the household AC outlet, cut off and dispose of the plug.



# BASIC OPERATION

Have both of transport security devices been released? (Refer to page 2.)




## Normal play

Playing an entire disc from the first track to the last.

**Basic operations such as open/close, turning the power ON and OFF are the same for the other play modes as well.**

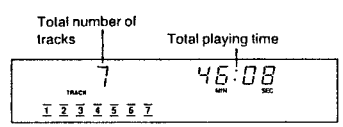
1 **Reduce the volume level (at the amplifier), and then switch ON the power.**

2 **Press the open/close button to open the disc holder and insert a disc.**

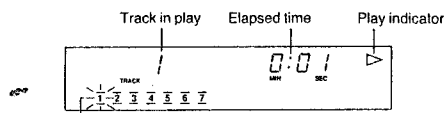
3 **Press the open/close button again to close the disc holder.**

Do not stick your finger through the hole in the middle of the disc holder. (It could get caught when the holder closes.)

The total number of tracks on the disc and the total playing time are displayed.




4 **Press the play button.**
Disc play begins from the first track on the disc.

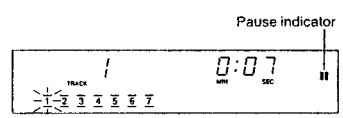



The bars above and below the number of the track in play flash. They go out when play finishes.

- The unit stops automatically when the last track on the disc finishes playing. (The display returns to the total number of tracks and total playing time indications.)
- Swtich power OFF when finished.

### ■ To stop disc play, press the stop button.
The unit switches to the stop mode and the total number of tracks and total playing time are displayed.

### ■ To temporarily stop disc play, press the pause button.




Press the play button to play again.

Notes:
- Attempting the change discs while the disc holder is in the process of opening can scratch or damage your discs.
- The total playing time displayed includes the silent sections between tracks. For this reason, it may differ by a few seconds from the playing time printed in the disc's liner notes.

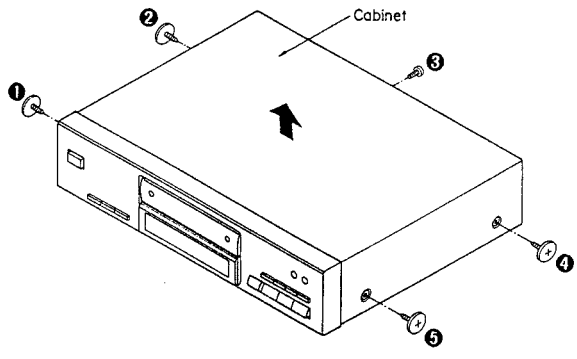
# ■ DISASSEMBLY INSTRUCTIONS

**Warning:** This product uses a laser diode. Refer to caution statements on page 3.

**ACHTUNG:**
- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

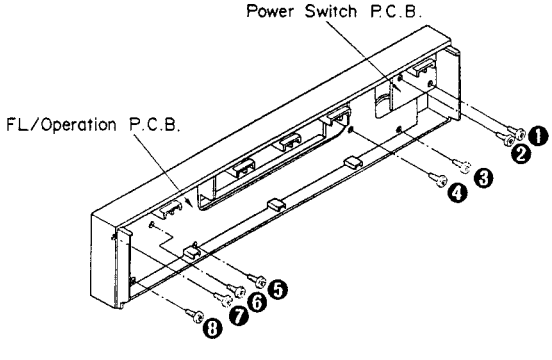
***This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.**

| Ref. No. 1 | Removal of the cabinet |
|---|---|
| Procedure 1 | |




- Remove the 5 screws (❶~❺).

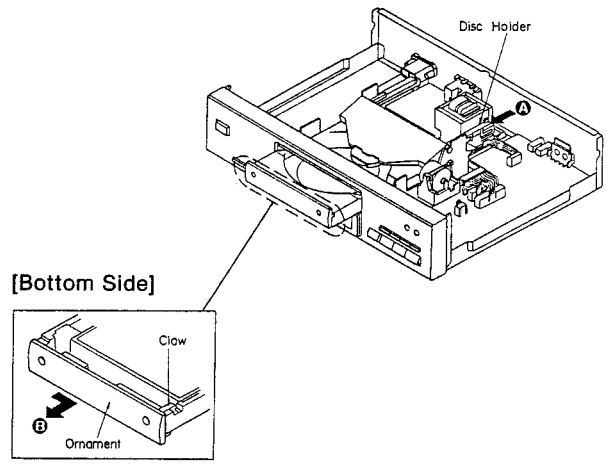
| Ref. No. 3 | Removal of the power switch P.C.B. and FL/Operation P.C.B. |
|---|---|
| Procedure 1→2→3 | |



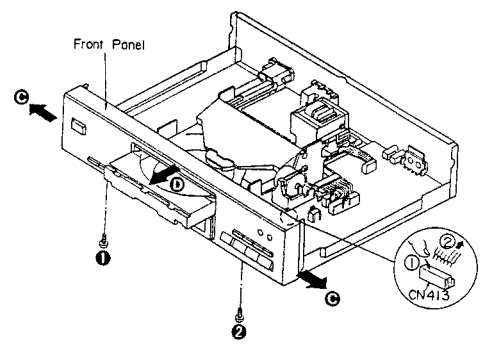

**■ Removal of the power switch P.C.B.**
- Remove the 2 screws (❶, ❷).

**■ Removal of the FL/Operation P.C.B.**
- Remove the 6 screws (❸~❽).

| Ref. No. 2 | Removal of the front panel |
|---|---|
| Procedure 1→2 | |



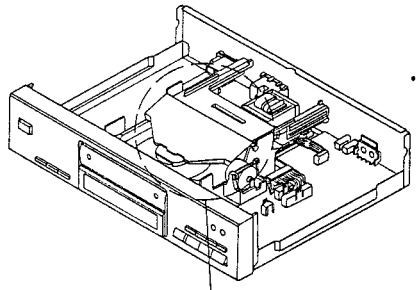

1. Push the disc holder slowly in the direction of arrow (Ⓐ).
2. Release the 1 claw and the ornament in the direction of arrow (Ⓑ).

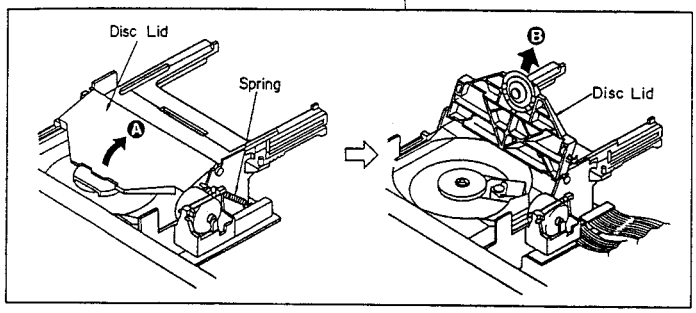



3. Remove the 1 flat cable (CN413).
4. Remove the 2 screws (❶, ❷).
5. Slightly pull out the front panel in the direction of arrow (Ⓒ).
6. Remove the front panel in the direction of arrow (Ⓓ).

| Ref. No. 4 | Removal of the disc lid |
|---|---|

**Procedure 1→4**

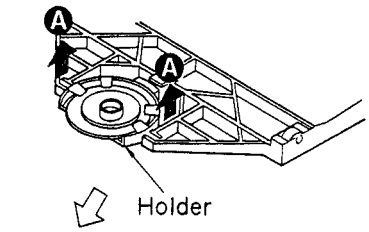


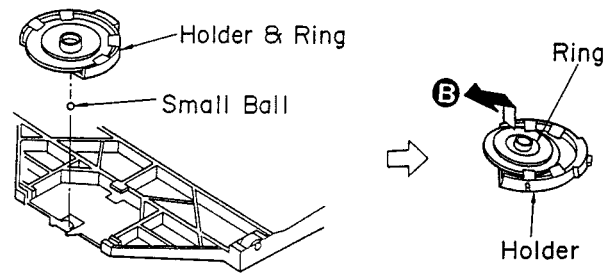



1. Remove the spring.
2. Move the disc lid in the direction of arrow (Ⓐ) and pull out this in the direction of arrow (Ⓑ).

| Ref. No. 5 | Removal of the holder and ring |
|---|---|

**Procedure 1→4→5**



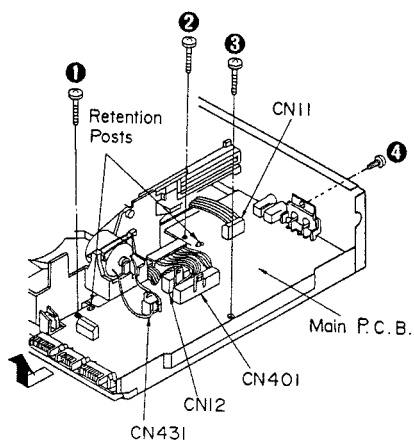




1. Pull out the holder in the direction of arrow (Ⓐ).
2. Remove the ring in the direction of arrow (Ⓑ).

**Caution:** Be sure to handle the small ball carefully.

| Ref. No. 6 | Removal of the main P.C.B. |
|---|---|

**Procedure 1→2→3→6**

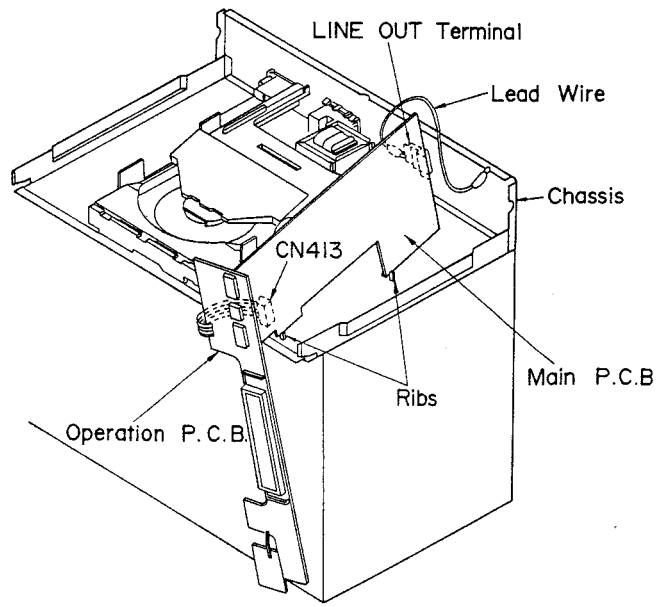



1. Remove the 4 screws (❶~❹).
2. Remove the 3 connectors (CN12, CN401, CN431).
3. Remove the 1 flat cable (CN11).
4. Lift the main P.C.B. off the retention posts on the chassis.
5. Remove the main P.C.B. in the direction of arrow.

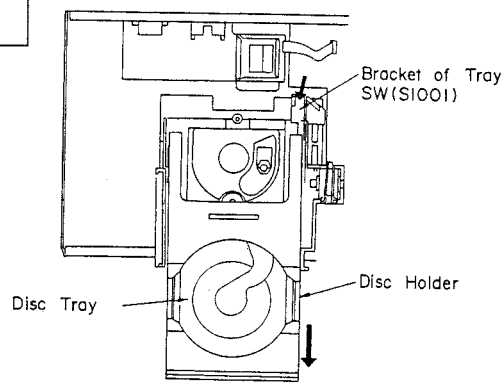
**How to check the main P.C.B.**

When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown below.

1. Don't remove the connectors (CN12, CN401, CN431) and flat cables (CN11, CN413).
2. Connect the main P.C.B. ground terminal (LINE OUT terminal) to the chassis with a lead wire.

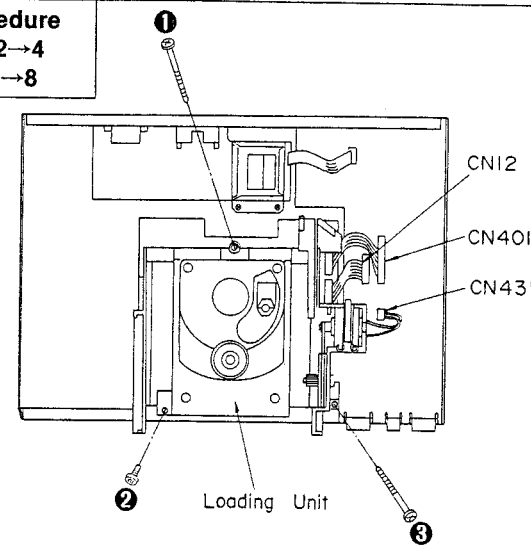


| Ref. No. 7 | Removal of the disc holder |
|---|---|
| Procedure 1→2→4→7 | |



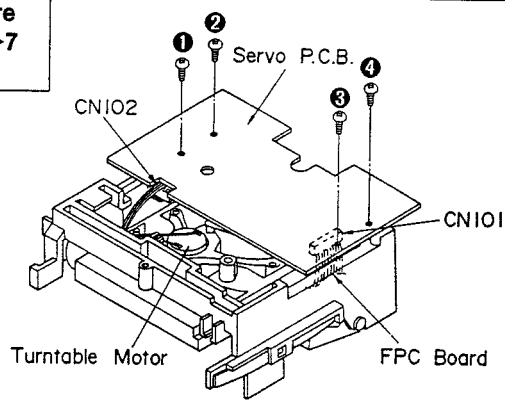

1. Pull the disc holder slowly in the direction of arrow until the disc tray comes up.
2. Pull the disc holder until it stops.
3. Push the bracket of tray SW (S1001) in the direction of arrow.
4. Pull out the disc holder further to remove it.

| Ref. No. 8 | Removal of the loading unit |
|---|---|
| Procedure 1→2→4 →7→8 | |




1. Remove the 3 screws (❶~❸).
2. Remove the 3 connectors (CN12, CN401, CN431).

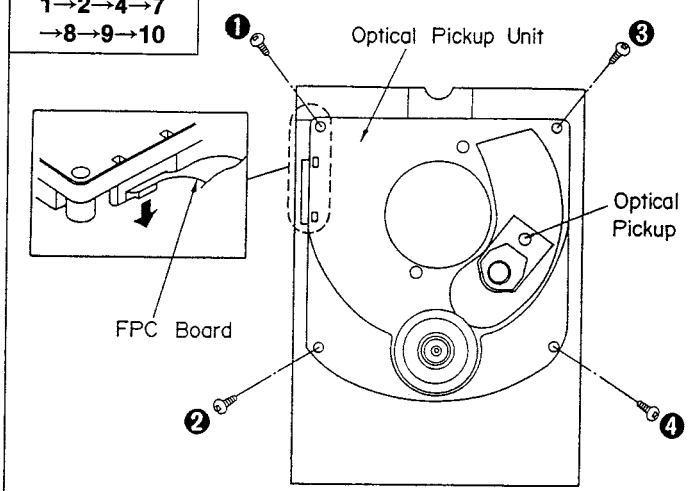
| Ref. No. 9 | Removal of the servo P.C.B. |
|---|---|
| Procedure 1→2→4→7 →8→9 | |




1. Remove the 4 screws (❶~❹).
2. Remove the FPC board (CN101) from the optical pickup.
3. Remove the 1 connector (CN102) of the turntable motor.

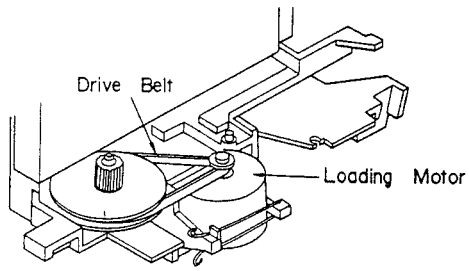
**Caution:** To prevent the breakdown of the laser diode, antistatic shorting pin is inserted into the FPC board.

| Ref. No. 10 | Removal of the optical pickup unit |
|---|---|
| Procedure 1→2→4→7 →8→9→10 | |

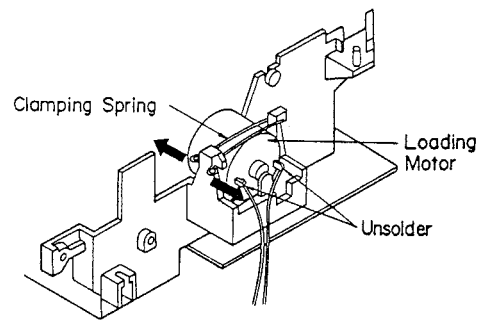



1. Remove the 4 screws (❶~❹).
2. Remove the FPC board from the optical pickup.

| Ref. No. 11 | Removal of the loading motor |
|---|---|
| Procedure 1→2→4 →7→11 | |



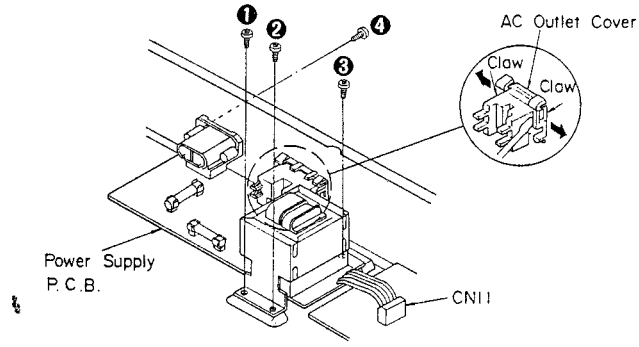

1. Remove the drive belt.




2. Release the clamping spring.
3. Unsolder the 2 terminals of the lead wire of the loading motor.

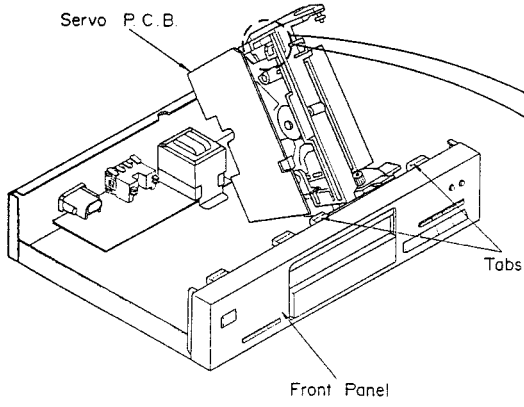
| Ref. No. 12 | Removal of the power supply P.C.B. |
|---|---|
| Procedure 1→12 | |

1. Remove the 4 screws (❶~❹).
2. Remove the 1 connector (CN11).
3. Release the 2 claws of the AC outlet cover.




## ■ CHECKING OF THE SERVO P.C.B.

1. Remove the cabinet (see Ref. No. 1 of the disassembly instructions).
2. Remove the disc lid and disc holder (see Ref. No. 4 and No. 7 of the same).
3. Remove the loading unit (see Ref. No. 8 of the same).
4. When checking the soldered surface of the servo P.C.B. and replacing the parts, do as shown below.

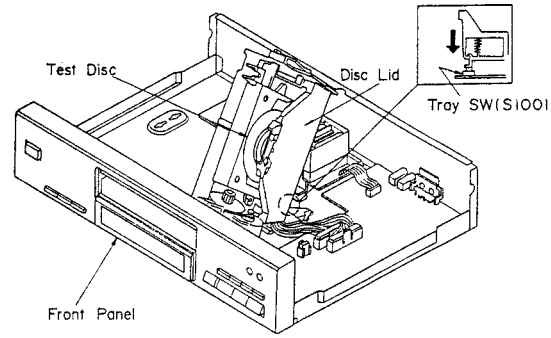


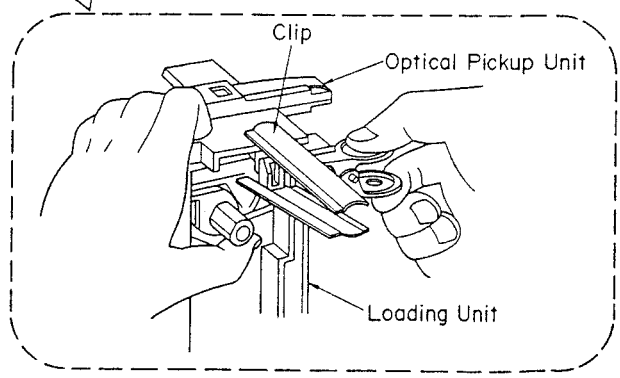

**Note:** Put on the loading unit on the tabs of the front panel. (Fixed loading unit)
Hold the loading unit and the optical pickup unit with a clip. (Fixed optical pickup unit)
Secure the optical pickup assembly with a clip. (Otherwise the clamper will interfere with the disc, restricting turntable rotation.)

**(To play a disc)**

1. Place the test disc.
2. Reinstall the disc lid to the loading unit.
3. Turn "ON" the power switch of the player.
4. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.

**Note:** If the test disc fails to rotate, press the tray switch again.

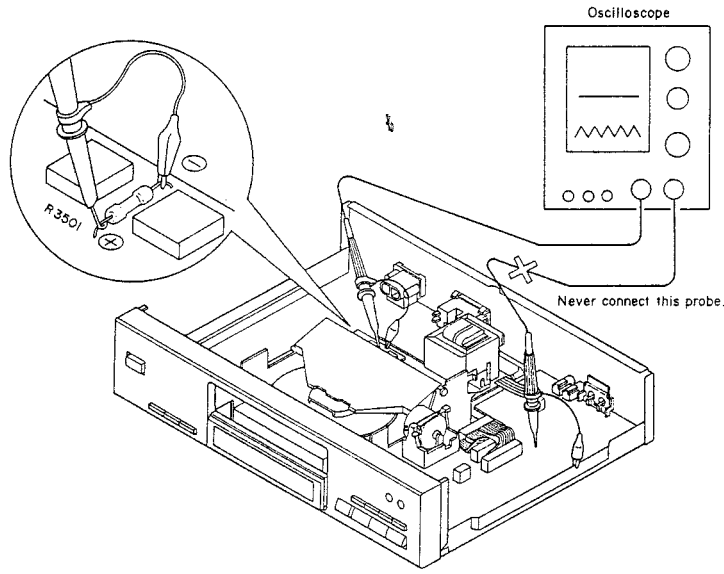


# MEASUREMENTS AND ADJUSTMENTS

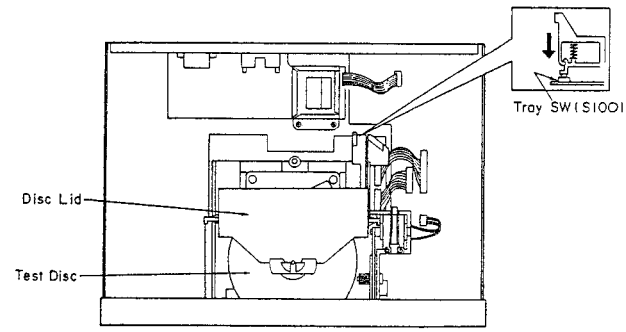
**Caution:**

1. It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.
2. During laser power or focus offset adjustment, never connect the other probe to the unit. (Otherwise the unit's power supply will sustain damage.)



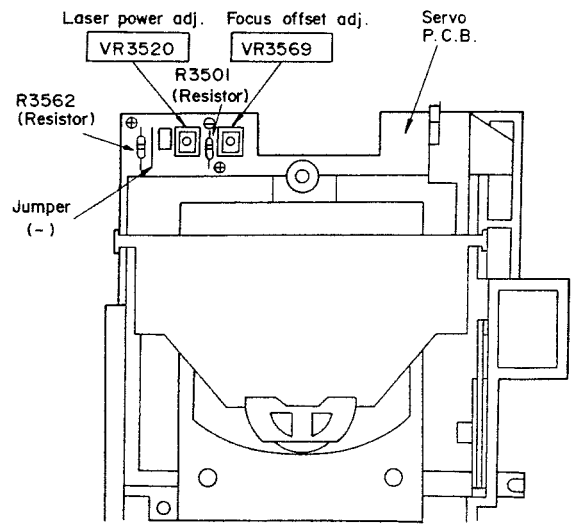

## PREPARATION

1. Remove the cabinet (see Ref No. 1 of the disassembly instructions).
2. Remove the disc holder (see Ref No. 7 of the same).
3. Place the test disc on the turntable.
4. Turn "ON" the power switch at the player.
5. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.
   **Note:** If the test disc fails to rotate, press the tray switch again.




## ADJUSTMENT POINTS

- **Servo P.C.B.**

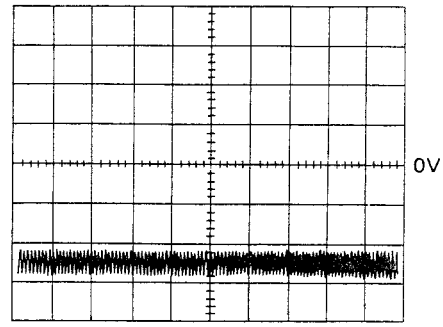


## Measuring Instruments

* Playability test disc (SZZP1054C).
* Normal disc (Ordinary musical program disc).
* Dual-beam oscilloscope with bandwidth of 30 MHz or better (with EXT trigger and 1: 1 probe).

## (1) LASER POWER ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across (+) and (−) of **R3501** (Resistor) on the servo P.C.B.
2. Switch the player power ON, and play track No. 1 on the test disc (SZZP1054C).
3. Adjust **VR3520** so that the voltage is **−50±2mV**.

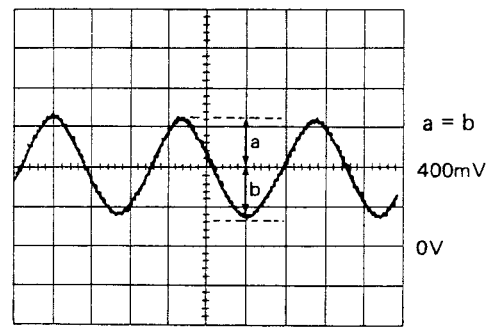



**Oscilloscope setting:**

VOLT .....20mV
SWEEP.....0.2msec.
INPUT.....DC

## (2) FOCUS OFFSET ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across **R3562** (Resistor) (+) and **Jumper** (−) on the servo P.C.B.
2. Switch the player power ON, and play track No. 1 on the test disc (SZZP1054C).
3. Adjust **VR3569** until the signal amplitude become in the center of **400mV**.




**Oscilloscope setting:**

VOLT .....200mV
SWEEP.....5msec.
INPUT.....DC

## (3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

* **Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

* **Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

* **Playability check by test disc**

1. Play the 0.7mm black dot and the 0.7mm wedge on the defect test disc (SZZP1054C) and verify that no sound skip or noise occurs.

# TERMINAL FUNCTION OF IC'S

## • IC6501 (482220973234/TDA8808T): Photo diode signal processor

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | GCHF | I | Gain control input of HF amplifier. Current output from HF amplitude detector |
| 2 | Vp | I | Positive supply voltage |
| 3 | HFout | O | HF amplifier and equalizer voltage output |
| 4 | DET | I | HF detector voltage input |
| 5 | Sc | I | Starting up capacitor input |
| 6 | Si/$\overline{RD}$ | I/O | On/off control (start input); ready signal output (starting up procedure successful) |
| 7 | Beg | I | Equalizer reference current input |
| 8 | Bgc | I | DC and LF gain control reference current input |
| 9 | FOC START | I | Focus normalizing circuit starting current |
| 10 | PLLH | O | PLL on hold output |
| 11 | $\overline{TL}$ | O | Track loss output |
| 12 | $\overline{DODS}$ | I | Drop out detector suppression input |
| 13 | Vext | I | Negative supply connection for FE and FElag output stage; also substrate connection |
| 14 | LPF | O | Low pass filter for Iret, used in track loss ($\overline{TL}$) detector and LF gain control |
| 15 | FE | O | Current output of normalized, switched focus error signal |
| 16 | FElag | O | Current output of switched focus error signal, intended for lag network |
| 17 | LO | O | Laser amplifier current output |
| 18 | LM | I | Laser monitor diode input |
| 19 | GCLF | I | Gain control input for AC and LF amplifiers. Current output from LF amplitude detector |
| 20 | Re2 | O | Summation of amplified currents from D3 and D4 |
| 21 | Re1 | O | Summation of amplified currents from D1 and D2 |
| 22, 23 | D1, D2 | I | Current inputs to DC and LF photo diode amplifier |
| 24, 25 | D3, D4 | I | Current inputs to DC and LF photo diode amplifier |
| 26 | HFin | I | Current input to HF amplifier |
| 27 | GND | I | Ground connection of device |
| 28 | DEC | I | Decoupling input (internal bypass) |

## • IC6503 (482220973235/TDA8809T): Radial error signal processor

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | Vp | I | Positive supply voltage |
| 2 | Cosc1 | I | Frequency setting capacitors for oscillator |
| 3 | Cosc2 | | |
| 4 | Rwob | I | Wobble generator input |
| 5 | Rosc | I | Biassing resistor for oscillator frequency and internal amplitude |
| 6 | $\overline{DIV4}$ | I | Radial error digital signal devided by four |
| 7 | REdig | O | Digital output of sign (Re2−Re1) |
| 8 | B3 | I | Input control bits for off-, catch-, play-status and DAC output current |
| 9 | B2 | | |
| 10 | B1 | | |
| 11 | B0 | | |
| 12 | Vext (+) | I | Positive external voltage input |
| 13 | Vext (−) | I | Negative external voltage input (also substrate connection) |
| 14 | GND | I | GND terminal |
| 15 | RADout | O | Current output of amplified (Re2−Re1) input currents |
| 16 | REin | I | Radial error input |
| 17 | RElag | O | Voltage output of integrated (Re2−Re1) input currents |
| 18 | Lag | I | Connection of integrator capacitor for (Re1−Re2) input currents |
| 19 | Lead | O | Lead output |
| 20 | Vref | I | Internal reference voltage output |
| 21 | AGC | I | Gain control input for radial error signal |
| 22 | RDAC | O | Biassing resistor for current output for track jumping ($3^1/_2$ bits) |
| 23 | offset in | I | Offset control input for radial offset |
| 24 | offset off | O | Offset control output for radial offset |
| 25 | CLPF | I | Low-pass filter for Re1 and Re2, used for radial offset control |
| 26 | CHPF | I | High-pass filter for Re1 and Re2, used for radial offset control |
| 27 | Re1 | I | Input for amplified currents from photo diodes D1 and D2 |
| 28 | Re2 | I | Input for amplified currents from photo diodes D3 and D4 |

## • IC301 (MN6626): Digital signal processor

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | AVSS | — | GND terminal |
| 2 | IREF | I | Reference current input |
| 3 | ARF | I | RF signal input |
| 4 | DRF | I | DSL bias terminal (Not used, open) |
| 5 | DSLF | I/O | DSL loop filter terminal |
| 6 | PLLF | I/O | PLL loop filter terminal |
| 7 | AVDD | I | Power supply terminal |
| 8 | RSEL | I | RF signal polarity setting terminal (Not used, connected to VDD) |
| 9 ∫ 16 | TBUS7 ∫ TBUS0 | O | Test terminal |
| 17 | FLAG | O | Flag terminal |
| 18 | IPFLAG | O | Interpolation flag terminal |
| 19 | FCLK | O | Crystal frame clock (Not used, open) |
| 20 | BYTCK | O | Byte clock (Not used, open) |
| 21 | WDCK | O | Word clock (Not used, open) |
| 22 | $\overline{RST}$ | I | Reset terminal |
| 23 | TX | O | Digital audio signal |
| 24 | LDG | O | Lch deglitch signal (Not used, open) |
| 25 | RDG | O | Rch deglitch signal (Not used, open) |
| 26 | SRDATA | O | Serial data output (MSB first) |
| 27 | SCK | O | Serial bit clock output |
| 28 | LRCK | O | L/R discriminating signal |
| 29 | XCK | O | Crystal OSC terminal (f=16.9344 MHz) |
| 30 | PMCK | O | Frequency division clock signal (Not used, open) ($f=\frac{1}{192}\times CK=88.2$ kHz) |
| 31 | CSEL | I | Test terminal (Connected to GND) |
| 32 | PSEL | | |
| 33 | X1 | I | Crystal OSC terminal (f=16.9344 MHz) |
| 34 | X2 | O | |
| 35 | VSS | — | GND terminal |
| 36 | SUBQ | O | Sub-code Q data |
| 37 | SQCK | I | Sub-code Q register clock |
| 38 | $\overline{CLDCK}$ | O | Sub-code frame clock (f=7.35 kHz) (Not used, open) |

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 39 | BLKCK | O | Sub-code block clock (f=75 Hz) |
| 40 | DEMPH | O | De-emphasis ON signal ("H": ON) |
| 41 | MEMP | I | Emphasis signal |
| 42 | MLD | I | Command load signal ("L": LOAD) |
| 43 | MCLK | I | Command clock signal |
| 44 | MDATA | I | Command data signal |
| 45 | D MUTE | I | Muting input ("H": MUTE) |
| 46 | SMCK | O | System clock (f=4.2336 MHz) |
| 47 | STAT | O | Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK) |
| 48 | CRC | O | Sub-code CRC check terminal ("H": OK, "L": NG) |
| 49 | SUBC | O | Sub-code serial output data (Not used, open) |
| 50 | SBCK | I | Sub-code serial output clock (Not used, open) |
| 51 | $\overline{TRON}$ | I | Tracking servo ON signal ("L": ON) |
| 52 | CLVS | O | Turntable servo phase synchro signal ("H": CLV, "L": Rough servo) |
| 53 | PC | O | Turntable motor ON signal ("L": ON) |
| 54 | ECM | O | Turntable motor drive signal (Forced mode) |
| 55 | ECS | O | Turntable motor drive signal (Servo error signal) |
| 56 | VDD | I | Power supply terminal |
| 57 | $\overline{TEST}$ | I | Test terminal (Normal: "H") |
| 58 | SSEL | I | "SUBQ" terminal mode select ("H": Q code buffer) |
| 59 | MSEL | I | "SMCK" terminal frequency select ("L": SMCK=4.2336 MHz) |
| 60 | RESY | O | Re-synchronizing signal of frame sync. (Not used, open) |
| 61 | DO | I | Drop-out detection signal ("H": Drop-out) (Not used, connected to GND) |
| 62 | EFM | O | EFM signal (Not used, open) |
| 63 | PCK | O | PLL extract clock (f=4.3218 MHz) |
| 64 | PDO | O | Phase comparated signal of EFM and PCK (Not used, open) |
| | | | |

## • IC401 (MN1871617PKU): System control & FL drive

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | VDD | I | Power supply terminal |
| 2 | OSC2 | I | System clock input (f=4.2336MHz) |
| 3 | OSC1 | | |
| 4 | VSS | — | GND terminal |
| 5 | XI | I | Radial error digital signal |
| 6 | XO | O | Not Used, open |
| 7 | P47 | I | |
| 8 ∫ 12 | P46 ∫ P42 | I | Key return signal |
| 13 | SYNC REC | O | Synchro rec control |
| 14 | REC ENABLE | I | |
| 15 ∫ 18 | D3 ∫ D0 | — | Not used, open |
| 19 | CLK | — | Not used, open |
| 20 | ACK | | |
| 21 | BSEND | | |
| 22 | BRECV | | |
| 23 | P27 | | |
| 24 | OPEN/ CLOSE | O | Loading motor control signal |
| 25 | DMUTE | O | Muting output ("H": MUTE) |
| 26 | SI/RD | I/O | On/off control and ready signal |
| 27 ∫ 30 | B3 ∫ B0 | O | Control bits for off-, catch-, play-status and DAC output current |
| 31 | REMOCON | I | Remote control signal |
| 32 | REDIG | I | Radial error digital signal |
| 33 | MDATA | O | Command data signal |
| 34 | MCLK | O | Command clock signal |
| 35 | MLD | O | Command load signal ("L": LOAD) |

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 36 | TL | I | Track loss input |
| 37 | RST | I | Reset terminal |
| 38 | SQCK | O | Sub-code Q register clock |
| 39 | SUBQ | I | Sub-code Q data |
| 40 | TRAY SW | I | Disc holder open/close det. terminal |
| 41 | BLKCK | I | Sub-code block clock (f=75Hz) |
| 42 | DODS | O | Drop-out detect signal |
| 43 | STAT | I | Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK) |
| 44 | P95 | — | Not used, open |
| 45 | CLVS | I | Spindle servo phase synchro signal ("H": CLV, "L": Rough servo) |
| 46 | TRON | O | Tracking servo ON signal ("L": ON) |
| 47 | DIV4 | O | Radial error digital signal devided by four |
| 48 | EMPH | O | Emphasis signal |
| 49 | HFD | I | PLL on hold input |
| 50 | CM | — | Not used, connected to GND |
| 51 | 130Hz | — | Not used, open |
| 52 | VPP | I | Power supply terminal for FL drive |
| 53 ∫ 56 | 16G ∫ 13G | — | Not used, open |
| 57 ∫ 68 | 12G ∫ 1G | O | FL digit signal |
| 69 ∫ 84 | A/SEGO ∫ P/SEGP | O | FL segment signal and key scan signal |

## • IC801 (MN6477E2): Digital filter and D/A converter

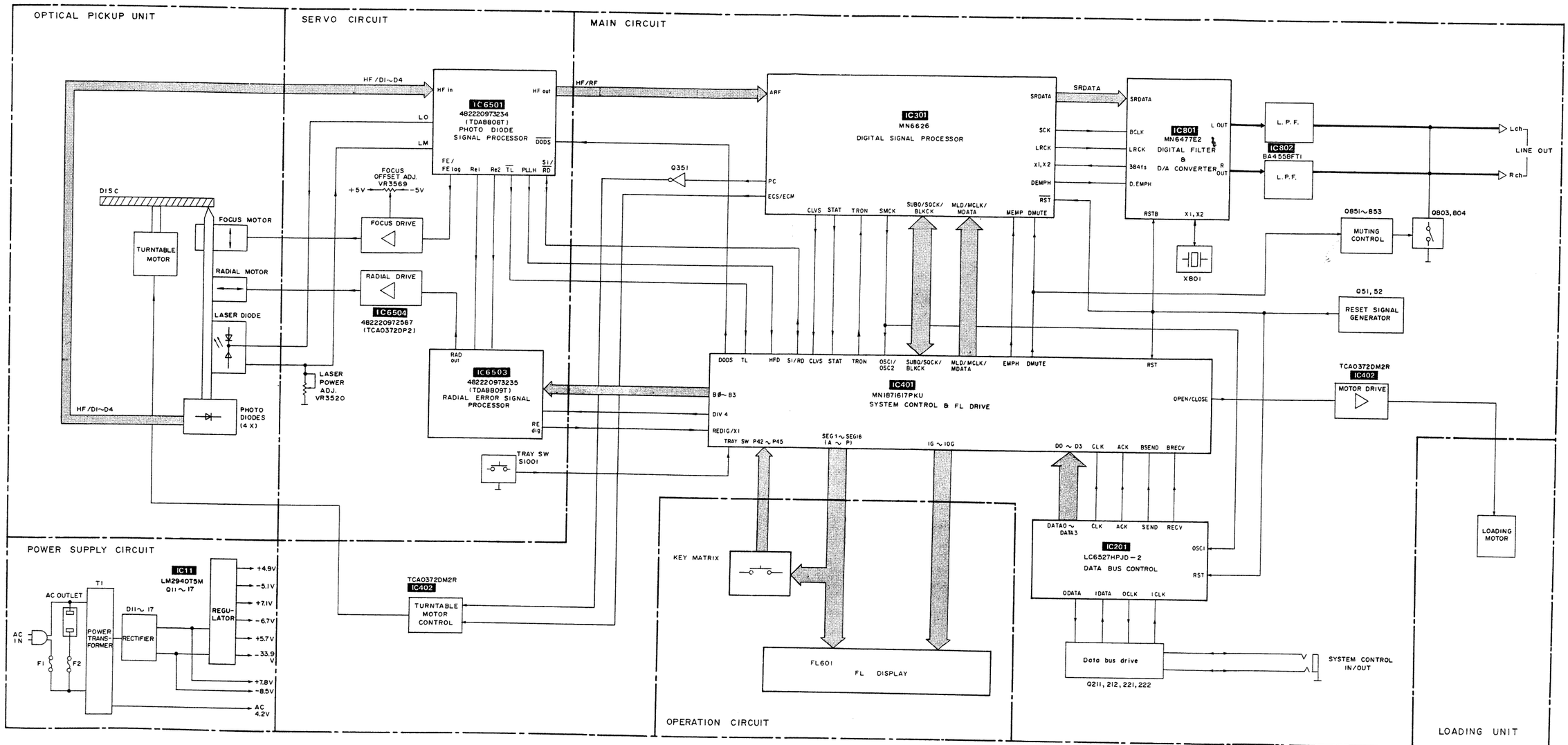
| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | LRCK | I | LR discrimination signal input |
| 2 | BCLK | I | Serial bit clock input |
| 3 | SRDATA | I | Serial data input (MSB first) |
| 4 | COT2 | — | Not used, connected to GND |
| 5 | COT1 | | |
| 6 | TEST | I | Test terminal (Connected to GND) |
| 7 | D. VDD | I | Power supply terminal (Digital system) |
| 8 | X1 | I | Crystal OSC terminal (33MHz) |
| 9 | X2 | O | |
| 10 | D. VSS | I | GND terminal (Digital system) |
| 11 | A. VDD/L | I | Power supply terminal (Analog system of Lch) |
| 12 | LOUT | O | Lch data output |

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 13 | A. VSS/L | I | GND terminal (Analog system of Lch) |
| 14 | A. VSS/R | I | GND terminal (Analog system of Rch) |
| 15 | R OUT | O | Rch data output |
| 16 | A. VDD/R | I | Power supply terminal (Analog system of Rch) |
| 17 | $\overline{RST}$ | I | Reset input terminal |
| 18 | PWM | — | Not used, open |
| 19 | TP | I | Not used, connected to GND |
| 20 | WVEL | | |
| 21 | D. EMPH | I | De-emphasis signal input |
| 22 | CSEL | I | Not used, connected to power supply |
| 23 | 384FS | O | 384fs (16.9344MHz) signal output |
| 24 | 768FS | — | Not used, open |

# ■ BLOCK DIAGRAM

**Note)**

• ⟶ Audio signal.




RAD out : Current output of integrated (Re2−Re1) input currents.
B0~B3 : Control bits for radial circuit.
DODS : Drop out detect signal.
D1~D4 : Photodiode currents.
FE : Focus error signal.
FE lag : Focus error signal for LAG network.
HF out : HF amplifier and equalizer voltage output.
HFin : HF current input.
LM : Laser monitor diode input.
LO : Laser amplifier current output.
Re1 : Radial error signal 1 (summation of amplified currents D3 and D4).
Re2 : Radial error signal 2 (summation of amplified currents D1 and D2).

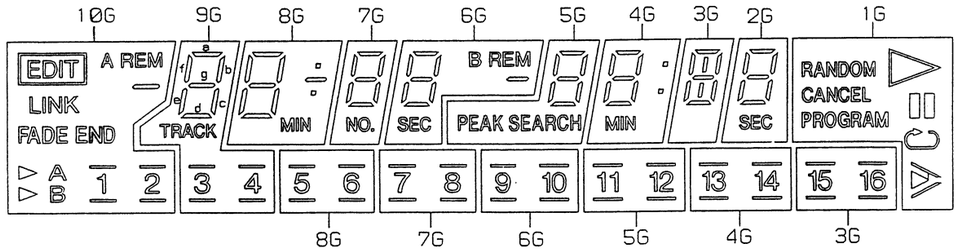
RE dig (RE DIG/X1) : Radial error digital.
Si/$\overline{RD}$ : On/off control for laser supply and focus circuit.
$\overline{TL}$ : Track loss signal.
$\overline{Div4}$ : Radial error digital devided by four.
HF/RF/ARF : RF (Audio) signal.
TRAY SW : Disc holder open/close det. terminal.
CLVS : Spindle servo phase synchro signal.
STAT : Status command for CRC etc.
DMUTE : Data mute command.
MDATA : Mode control data.
MLD : Load command for mode control data (Active Low).
PLLH/HFD : PLL on hold signal.

P42~44 : Key return signal.
1G~10G : FL digit signal.
SEG1~15 : FL segment signal and key scan signal.
$\overline{MCLK}$ : Data clock for MDATA.
$\overline{SUBQ}$ : Sub-code Q data.
BLKCK : Sub-code Q data block clock (75Hz).
$\overline{SQCK}$ : Sub-code Q register clock.
$\overline{RST}$ : Reset command (Active Low).
$\overline{TRON}$ : Tracking servo ON command (Active Low).
ECS/ECM : Turntable motor drive signal.
PC : Turntable motor ON command (Active Low).
SMCK (OSC1/OSC2) : System clock (4.2336MHz).

LRCK : L/R data discrimination clock (88.2KHz).
SRDATA : Serial data output (MSB first).
SCK (BCLK) : Serial bit clock (2.82MHz).
MEMP/EMPH : De-emphasis command (Active High).
384fs/X1, X2 : 384fs (16.9344MHz) signal.
DEMPH/D. EMPH : De-emphasis ON signal.
L OUT : Lch data signal.
R OUT : Rch data signal.
OPEN/CLOSE : Loading motor control signal.

# INTERNAL CONNECTION OF FL

- **Grid connection diagram**




- **Anode connection table**

| | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G | 1G |
|---|---|---|---|---|---|---|---|---|---|---|
| P1 | ▷ (A) | a | a | a | a | a | a | a | a | ▷ |
| P2 | ▷ (B) | b | b | b | b | b | b | b | b | ▯▯ |
| P3 | LINK | c | c | c | c | c | c | c | c | ↻ |
| P4 | - | d | d | d | d | d | d | d | d | / |
| P5 | - | e | e | e | e | e | e | e | e | ▷ |
| P6 | EDIT A B | f | f | f | f | f | f | f | f | / |
| P7 | FADE END | g | g | g | g | g | g | g | g | CANCEL |
| P8 | - | TRACK | MIN | NO. | SEC | SEARCH | MIN | / / | SEC | - |
| P9 | ⬭ | - | ⬭ | - | ⬭ | PEAK | - | - | - | RANDOM |
| P10 | A REM | - | ▫ ▫ | - | B REM | - | ▫ ▫ | - | - | PROGRAM |
| P11 | (1) | (3) | (5) | (7) | (9) | (11) | (13) | (15) | - | - |
| P12 | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | - | - |
| P13 | (1) | (3) | (5) | (7) | (9) | (11) | (13) | (15) | - | - |
| P14 | (2) | (4) | (6) | (8) | (10) | (12) | (14) | (16) | - | - |
| P15 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | - | - |
| P16 | (2) | (4) | (6) | (8) | (10) | (12) | (14) | (16) | - | - |

- **Pin connection**

| PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONNECTION | FL1 | FL1 | NP | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G | 1G | PL1 | PL2 | PL3 | NP | NP | NP | NP | NP | NP | NP | NP | PL4 | PL5 | PL6 | PL7 | PL8 | PL9 | PL10 | PL11 | PL12 | PL13 | PL14 | PL15 | NP | FL2 | FL2 |

# SCHEMATIC DIAGRAM

**(Parts list on pages 30, 31, 36, 37.)**

(This schematic diagram may be modified at any time with development of new technology.)

**Notes:**

- **S613** : Play (▷ PLAY) switch.
- **S614** : Skip (|◀◀ SKIP) switch.
- **S615** : Search (◀◀ SEARCH) switch.
- **S616** : Program play (PROGRAM) switch.
- **S619** : Stop (■ STOP) switch.
- **S620** : Skip (▶▶| SKIP) switch.
- **S621** : Search (▶▶ SEARCH) switch.
- **S623** : Tape-side select (SIDE A/B) switch.
- **S624** : Random play (RANDOM) switch.
- **S626** : Disc holder open/close (▲ OPEN/CLOSE) switch.
- **S627** : Pause (▮▮ PAUSE) switch.
- **S628** : Repeat (REPEAT) switch.
- **S630** : Edit mode (NORMAL, TAPE LENGTH) switch.
- **S636** : Power "STANDBY ⏻ /ON" (POWER STANDBY ⏻ /ON) switch.
- **S1001** : Tray (OPEN/CLOSE) switch.

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  - *The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

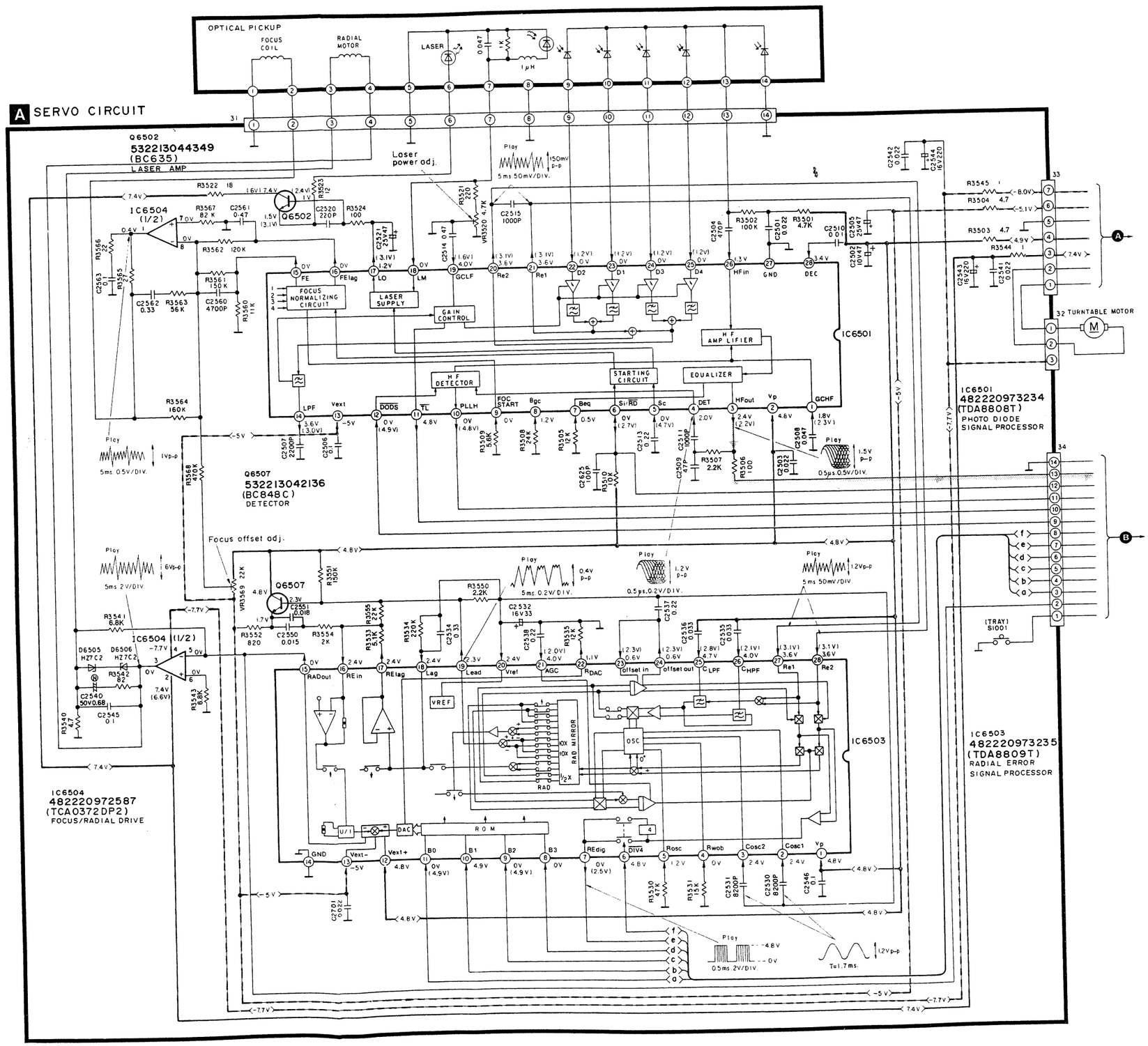
| Part No. | Original Part No. | Supply Part No. |
|---|---|---|
| IC11 | LM2940T5M | LM2940T5 |
| IC802 | BA4558FT1 | SVIBA4558F |

- ——— / – – – – – : Positive voltage lines and negative voltage lines.
  ▒▒▒▒ : Audio signal lines.

**Caution!**

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.



## B FL/OPERATION CIRCUIT

FL601 (RSL0084-F)

FL DISPLAY

## C POWER SWITCH CIRCUIT

S636 (POWER)

D601~606 ISS254TA

S619 (■ STOP)
S627 (▮▮ PAUSE)
S613 (▶ PLAY)
S626 (⏏ OPEN/CLOSE)
S620 (⏮ SKIP)
S614 (⏭ SKIP)
S615 (▶▶ SEARCH)
S621 (◀◀ SEARCH)
S628 (REPEAT)
S616 (PROGRAM)
S624 (RANDOM)
S630 (TAPE LENGTH)
S623 (SIDE A/B)

## D MAIN CIRCUIT

LOADING MOTOR

IC402 (1/2)

IC402
TCA0372DM2R
MOTOR DRIVE

Q351
DTA124ESTP
MOTOR CONTROL

D401 (SR139-200TA)

IC401
MN1871617PKU
SYSTEM CONTROL & FL DRIVE

IC301
MN6626
DIGITAL SIGNAL PROCESSOR

IC201

IC801
MN6477E
DIGITAL FIL
& D/A CONVE

Q52

17 18 19 20 21 22 23 24 25 26

Q211, 221
DTC114ESTP
BUS LINE DRIVE

Q212, 222
2SC3311QRSTA
BUS LINE DRIVE

IC201
LC6527HPJD-2
MICRO COMPUTER (BUS LINE DRIVE)

Q11, 15
2SA1309QRSTA
REGULATOR

Q16
2SB1238QSTV6
REGULATOR

Q17
2SD1862QSTV6
REGULATOR

IC11
LM2940T5M
REGULATOR

Q51, 52
2SC3311QRSTA
RESET SIGNAL GENERATOR

Q12
2SC3311QRSTA
REGULATOR

Q13, 14
2SA1309QRSTA
REGULATOR

Q852
DTA124ESTP
MUTING CONT.

Q853
DTA114ESTP
MUTING CONT.

Q851
DTC124ESTP
MUTING CONT.

IC801
MN6477E2
DIGITAL FILTER & D/A CONVERTER

Q803, 804
2SD1450RSTTA
MUTING

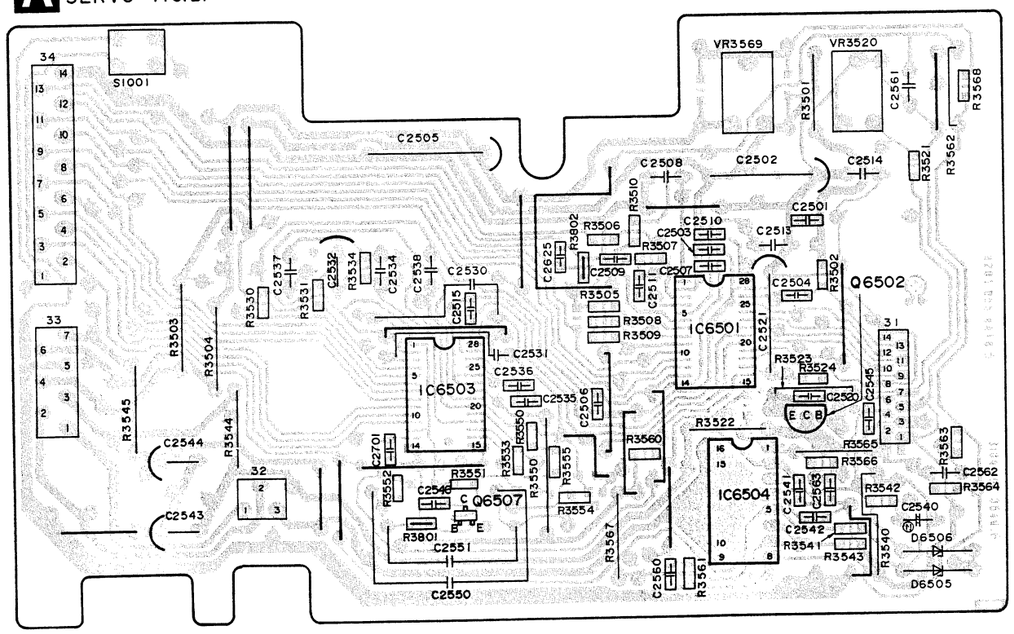
IC802
BA4558FTI
L.P.FILTER AMP

E POWER SUPPLY CIRCUIT FOR (E,EG) AREAS.

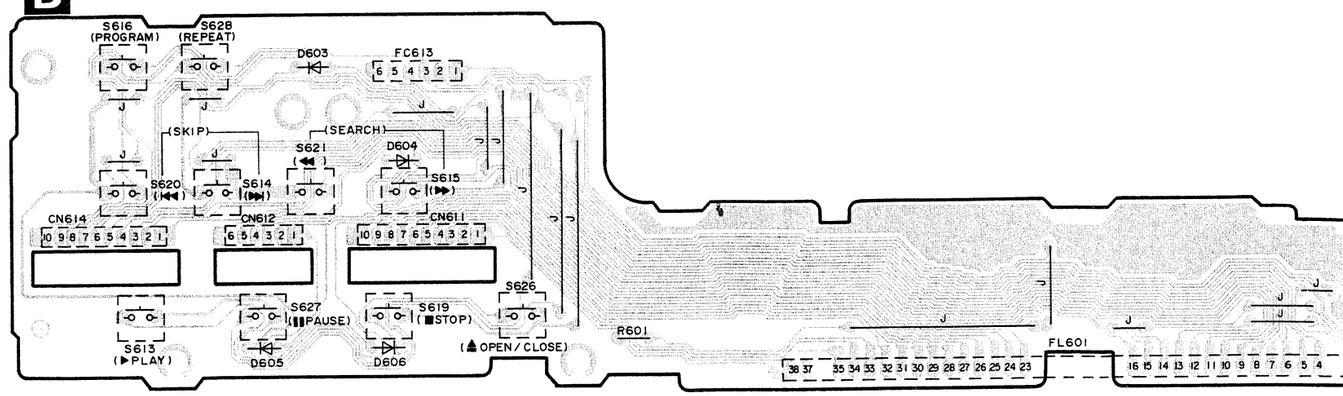
E POWER SUPPLY CIRCUIT FOR (EB) AREA.

# ■ PRINTED CIRCUIT BOARDS

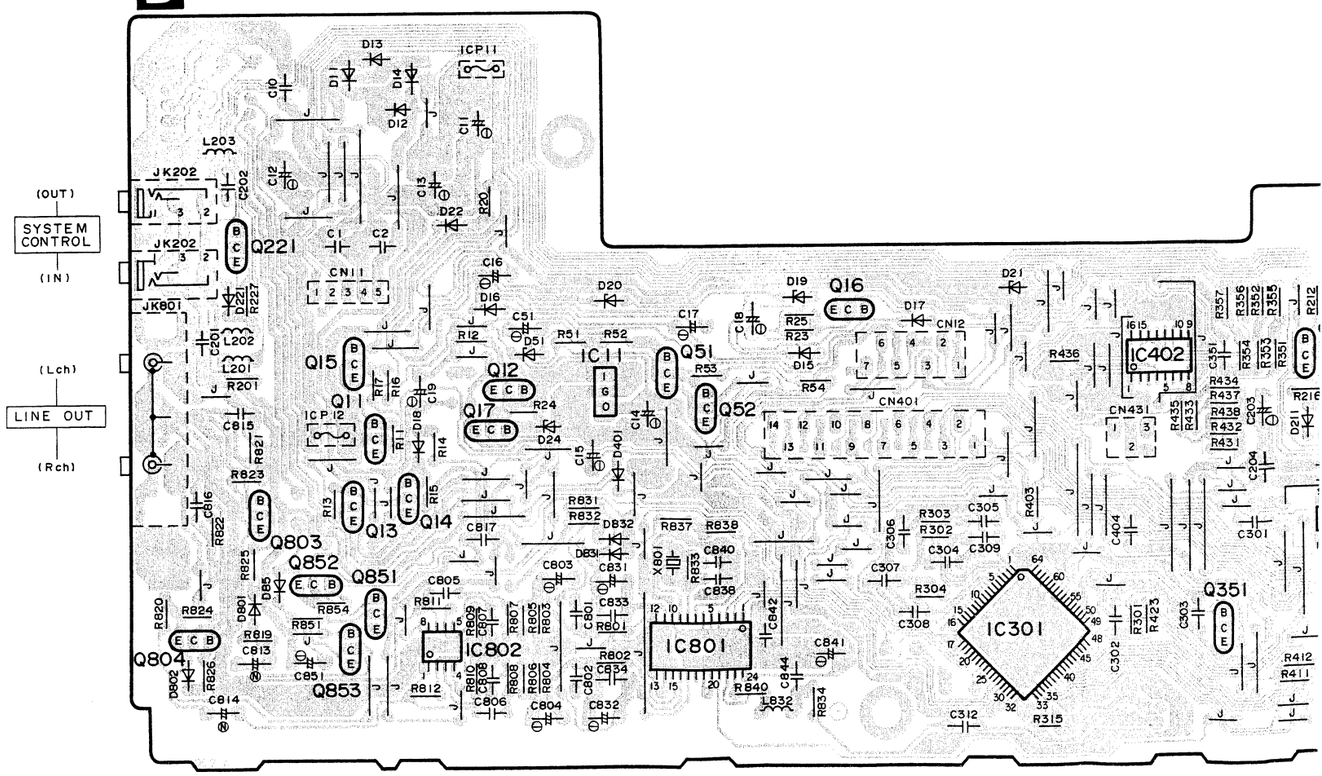
## A SERVO P.C.B.

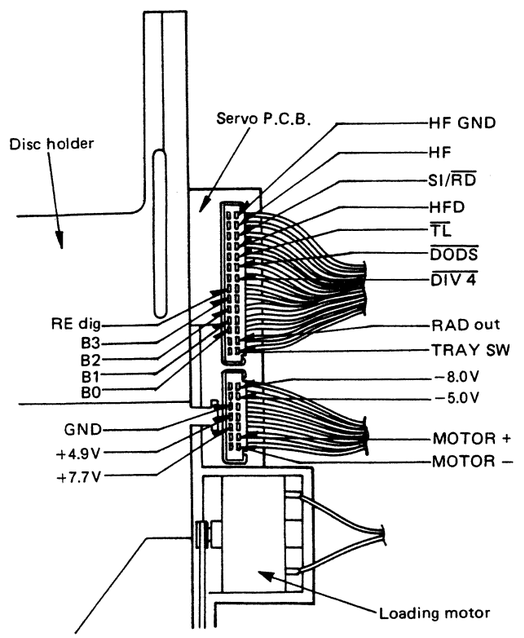



## B FL/OPERATION P.C.B.

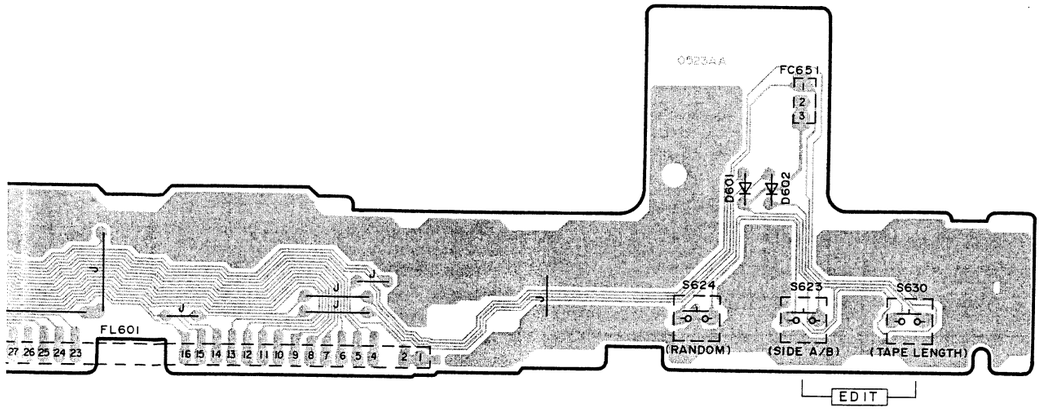



## C MAIN P.C.B.

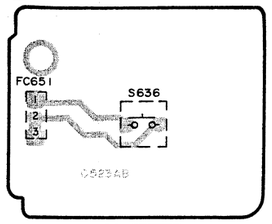


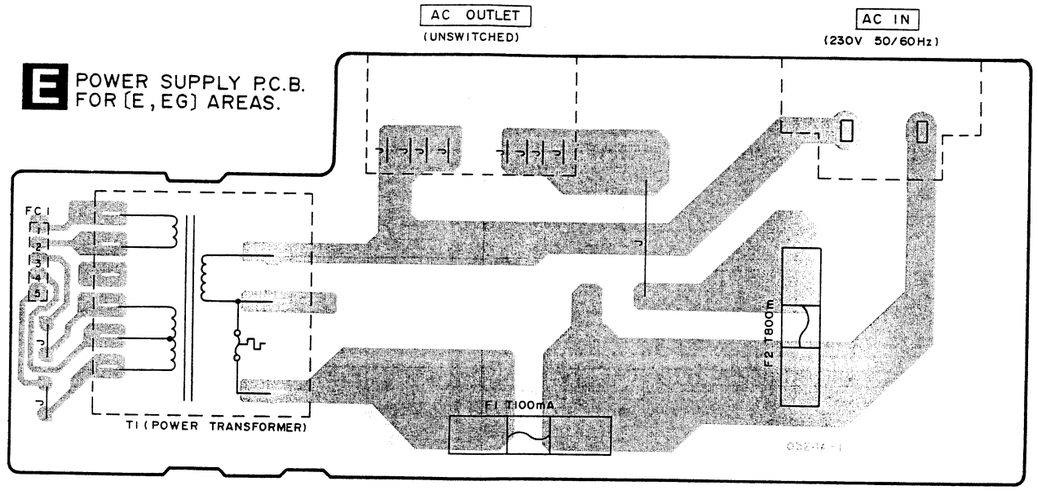

**Note:** Use connector pins to check servo circuit voltages and waveforms.



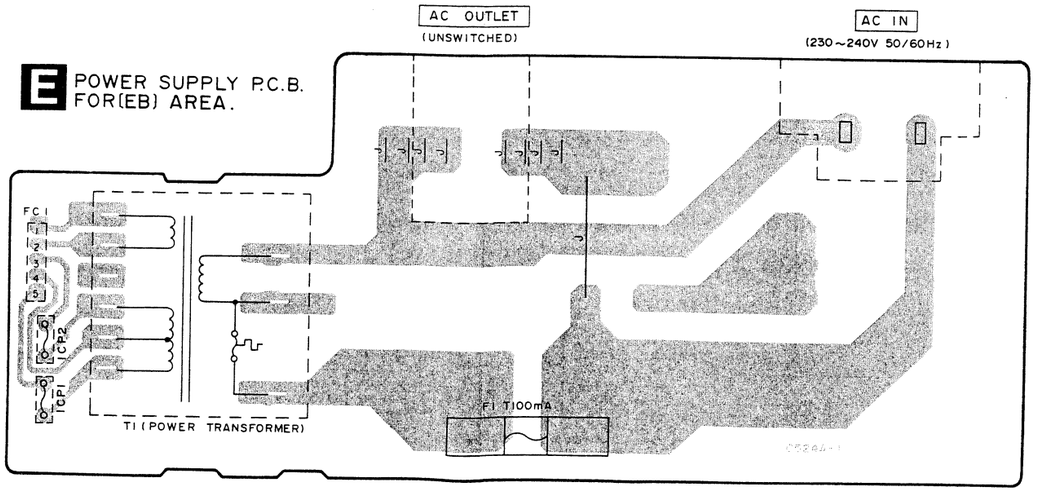

**C** POWER SWITCH P.C.B.

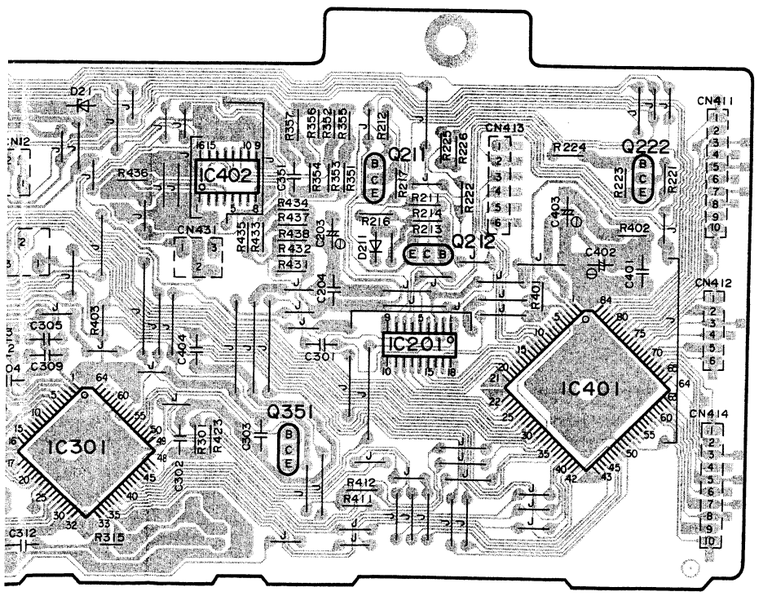



**E** POWER SUPPLY P.C.B. FOR (E, EG) AREAS.



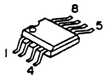
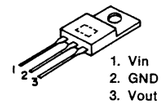
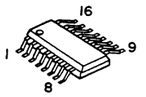
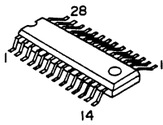
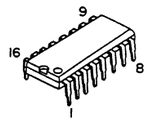
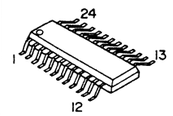
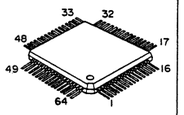
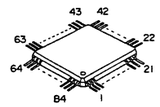
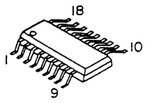
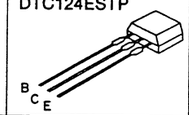
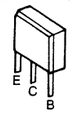
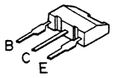
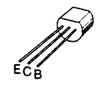
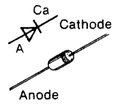
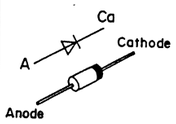
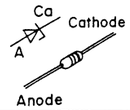
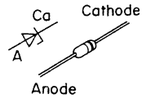

**E** POWER SUPPLY P.C.B. FOR (EB) AREA.



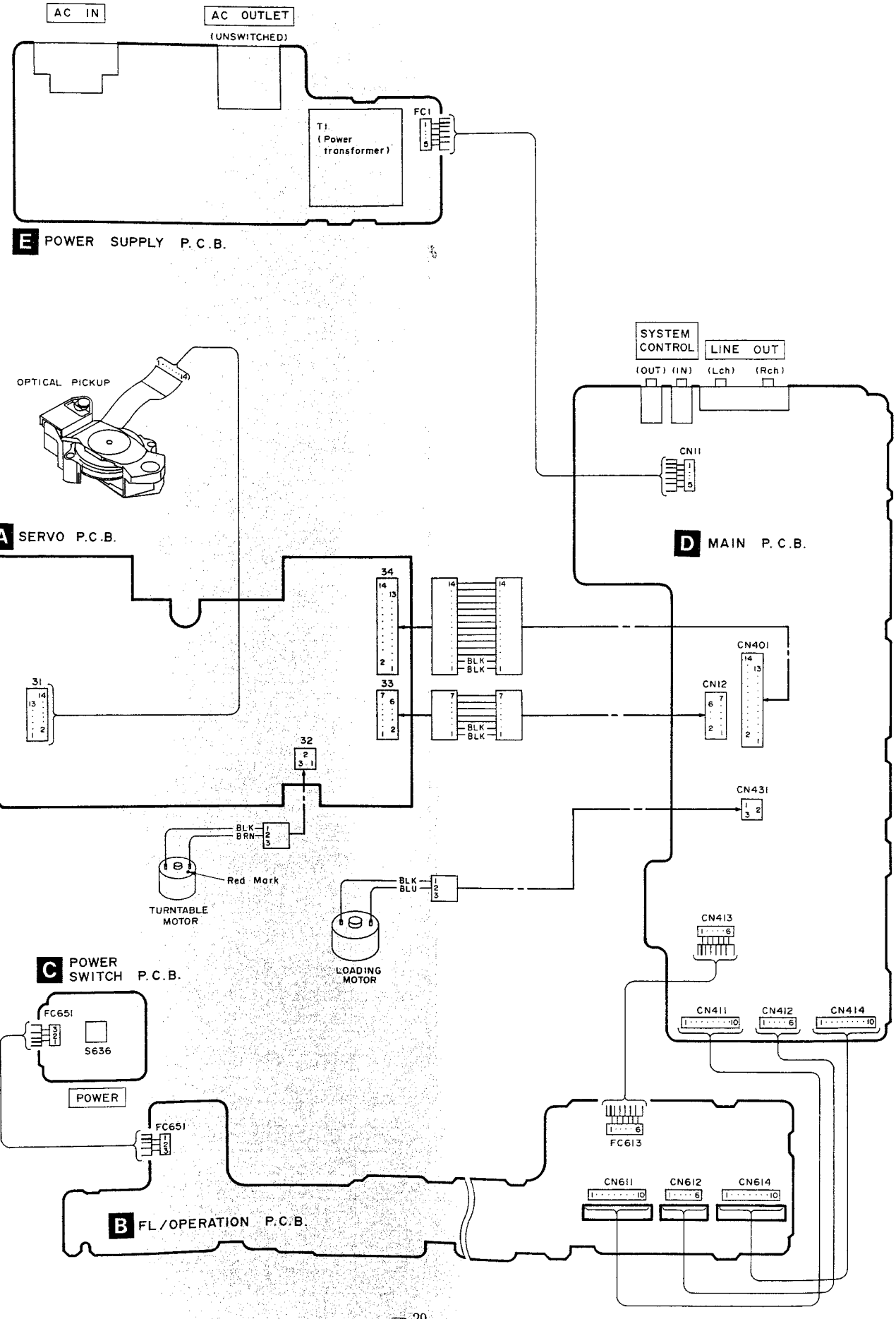






## ■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

| | | |
|---|---|---|
| BA4558FT1  | LM2940T5M   | TCA0372DM2R  |
|  | 482220973234 (TDA8808T) 482220973235 (TDA8809T) | 482220972587 (TCA0372DP2)  |
| MN6477E2  | MN6626  | MN1871617PKU  |
| LC6527HPJD-2  | DTC114ESTP DTA114ESTP DTA124ESTP DTC124ESTP  | 2SA1309QRSTA 2SC3311QRSTA 2SD1450RSTTA  |
| 2SB1238QSTV6 2SD1862QRTV6  | 532213044349 (BC635)  | 532213042136 (BC848C) |
| 1SS254TA MA700ATA  | 1SR139-200TA  | MA4039MTA MA4082MTA MA4062HTA  |
| MA4160MTA 482213081101 (HZ7C2)  | | |

# ■ WIRING CONNECTION DIAGRAM



# REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* [MB] Indicates in Remarks columns parts that are supplied by MBV.
* Warning: This product uses a laser diode. Refer to caution statements on page 3.
* ACHTUNG: Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | INTEGRATED CIRCUIT(S) | |
| | | | |
| IC11 | LM2940T5 | IC, REGULATOR | |
| IC201 | LC6527HPJD-2 | IC, DATA BUS CONT. | [MB] |
| IC301 | MN6626 | IC, DIGITAL S.P. | |
| IC401 | MN1871617PKU | IC, SYSTEM CONTROL&FL DRIVE | [MB] |
| IC402 | TCA0372DM2R | IC, MOTOR DRIVE | |
| IC801 | MN6477E2 | IC, DIGITAL FILTER&D/A CONV. | |
| IC802 | SVIBA4558F | IC, DIFFERENTIAL AMP | |
| | | | |
| | | TRANSISTOR(S) | |
| | | | |
| Q11 | 2SA1309A-R | TRANSISTOR | |
| Q12 | 2SC3311A-Q | TRANSISTOR | |
| Q13-15 | 2SA1309A-R | TRANSISTOR | |
| Q16 | 2SB1238QSTV6 | TRANSISTOR | |
| Q17 | 2SD1862QRTV6 | TRANSISTOR | |
| Q51, 52 | 2SC3311A-Q | TRANSISTOR | |
| Q211 | DTC114ESTP | TRANSISTOR | |
| Q212 | 2SC3311A-Q | TRANSISTOR | |
| Q221 | DTC114ESTP | TRANSISTOR | |
| Q222 | 2SC3311A-Q | TRANSISTOR | |
| Q351 | DTA124ESTP | TRANSISTOR | |
| Q803, 804 | 2SD1450RTA | TRANSISTOR | |
| Q851 | DTC124EST | TRANSISTOR | |
| Q852 | DTA124ESTP | TRANSISTOR | |
| Q853 | DTA114ESTP | TRANSISTOR | |
| | | | |
| | | DIODE(S) | |
| | | | |
| D11-17 | 1SR139-200TA | DIODE | ⚠ |
| D18 | 1SS254TA | DIODE | |
| D19, 20 | MA4160M | DIODE | |
| D21 | MA4082MTA | DIODE | |
| D22 | 1SS254TA | DIODE | |
| D24 | MA4062-H | DIODE | |
| D51 | MA4039MTA | DIODE | |
| D211 | MA700 | DIODE | |
| D221 | MA700 | DIODE | |
| D401 | 1SR139-200TA | DIODE | |
| D601-606 | 1SS254TA | DIODE | |
| D801, 802 | 1SS254TA | DIODE | |
| D831, 832 | 1SS254TA | DIODE | |
| D851 | 1SR139-200TA | DIODE | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | I.C. PROTECTOR(S) | |
| | | | |
| ICP1, 2 | SRUN38T | IC PROTECTOR | (EB) ⚠ |
| ICP11, 12 | SRUN15 | IC PROTECTOR | |
| | | | |
| | | COIL(S) | |
| | | | |
| L201-203 | RLQZN3R3KL-D | COIL | [MB] |
| L832 | RLQZN4R7KL-D | COIL | |
| | | | |
| | | TRANSFORMER(S) | |
| | | | |
| T1 | RTP1K4E013 | POWER TRANSFORMER | ⚠ [MB] |
| | | | |
| | | OSCILLATOR(S) | |
| | | | |
| X801 | RSXA33M8J01T | OSCILLATOR | [MB] |
| | | | |
| | | DISPLAY TUBE | |
| | | | |
| FL601 | RSL0084-F | DISPLAY TUBE | [MB] |
| | | | |
| | | FUSE(S) | |
| | | | |
| F1 | XBA2C01TB0 | FUSE 250V T100mA | ⚠ |
| F2 | XBA2C08TB0 | FUSE 250V T800mA | (E, EG) ⚠ |
| | | | |
| | | SWITCH(ES) | |
| | | | |
| S613 | EVQ21405R | SW, PLAY | |
| S614 | EVQ21405R | SW, SKIP(R) | |
| S615 | EVQ21405R | SW, SEARCH(R) | |
| S616 | EVQ21405R | SW, PROGRAM | |
| S619 | EVQ21405R | SW, STOP | |
| S620 | EVQ21405R | SW, SKIP(F) | |
| S621 | EVQ21405R | SW, SEARCH(F) | |
| S623 | EVQ21405R | SW, SIDE A/B(EDIT) | |
| S624 | EVQ21405R | SW, RANDOM | |
| S626 | EVQ21405R | SW, OPEN/CLOSE | |
| S627 | EVQ21405R | SW, PAUSE | |
| S628 | EVQ21405R | SW, REPEAT | |
| S630 | EVQ21405R | SW, NORMAL:TAPE LENGTH(EDIT) | |
| S636 | EVQ21405R | SW, POWER STANDBY/ON | |
| | | | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | CONNECTOR(S) AND SOCKET(S) | |
| | | | |
| CN11 | RJS1A6605 | CONNECTOR(5P) | MB |
| CN12 | RJT001H007 | CONNECTOR(7P) | MB |
| CN401 | RJT001H014 | CONNECTOR(14P) | MB |
| CN411 | RJU003K010M1 | SOCKET(10P) | |
| CN412 | RJU003K006M1 | SOCKET(6P) | |
| CN413 | RJS1A6606 | CONNECTOR(6P) | MB |
| CN414 | RJU003K010M1 | SOCKET(10P) | |
| CN431 | RJT001H003 | CONNECTOR(3P) | MB |
| CN611 | RJT003K010M1 | CONNECTOR(10P) | |
| CN612 | RJT003K006M1 | CONNECTOR(6P) | |
| CN614 | RJT003K010M1 | CONNECTOR(10P) | |
| | | | |
| | | JACK(S) | |
| | | | |
| JK201 | RJJ33T01 | CONTROL | |
| JK202 | RJJ33T01 | REMOTE CONTROL | |
| JK801 | RJH3201N | LINE OUT | |
| | | | |
| | | FLAT CABLE(S) | |
| | | | |
| FC1 | RWJ1805130KQ | FLAT CABLE(5P) | MB |
| FC613 | RWJ1806100KQ | FLAT CABLE(6P) | |
| FC651 | RWJ1803050KK | FLAT CABLE(3P) | MB |
| | | | |
| | | <SERVO P. C. B.> | |
| | | INTEGRATED CIRCUIT(S) | |
| | | | |
| IC6501 | 482220973234 | I. C, PHOTO DIODE S. P. | MB |
| IC6503 | 482220973235 | I. C, RADIAL ERROR S. P. | MB |
| IC6504 | 482220972587 | I. C, FOCUS/RADIAL DRIVE | MB |
| | | | |
| | | TRANSISTOR(S) | |
| | | | |
| Q6502 | 532213044349 | TRANSISTOR | MB |
| Q6507 | 532213042136 | TRANSISTOR | MB |
| | | | |
| | | DIODE(S) | |
| | | | |
| D6505 | 482213081101 | DIODE | MB |
| D6506 | 482213081101 | DIODE | MB |
| | | | |
| | | VARIABLE RESISTOR(S) | |
| | | | |
| VR3520 | 482210110685 | V. R, LASER POWER ADJ. | MB |
| VR3569 | 482210020522 | V. R, FOCUS OFFSET ADJ. | MB |
| | | | |
| | | SWITCH | |
| | | | |
| S1001 | 482227612523 | SW, TRAY | MB |
| | | | |

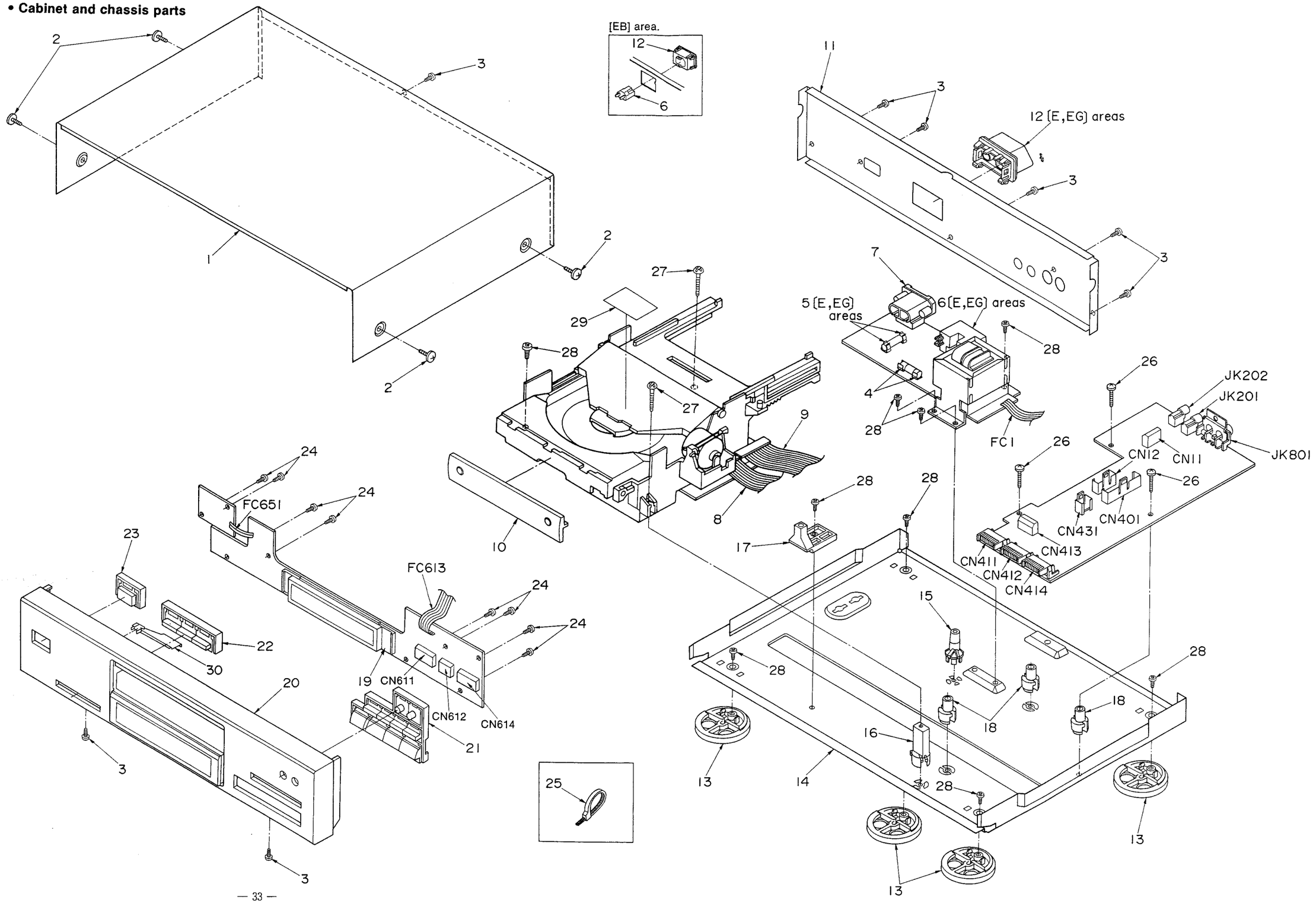
| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | CABINET AND CHASSIS | |
| | | | |
| 1 | RKM0153-K | TOP CASE | MB |
| 2 | SNE2129-1 | SCREW | |
| 3 | XTBS3+8JFZ1 | SCREW | |
| 4 | EYF52BC | FUSE HOLDER | |
| 5 | EYF52BC | FUSE HOLDER | (E, EG) |
| 6 | RJS1A4802-B | AC OUTLET | (EB) ⚠ |
| 6 | RJS1A4902-B | AC OUTLET | (E, EG) ⚠ |
| 7 | SJS9236 | AC INLET | ⚠ |
| 8 | REX0007 | CONNECTOR ASS'Y (7P) | MB |
| 9 | REX0285 | CONNECTOR ASS'Y (14P) | MB |
| 10 | RGK0326-K | TRAY ORNAMENT | MB |
| 11 | RFKHPJ28AE | REAR PANEL ASS'Y | (E, EG) MB |
| 11 | RFKHPJ28AEB | REAR PANEL ASS'Y | (EB) MB |
| 12 | RJS1A4802-A | AC OUTLET COVER | (EB) |
| 12 | RJS1A4902-A | AC OUTLET COVER | (E, EG) |
| 13 | RKA0042B | FOOT | MB |
| 14 | RFKJPJ28AE | CHASSIS ASS'Y | (E, EG) MB |
| 14 | RMK0115 | CHASSIS | (EB) MB |
| 15 | RMR0020 | SPACER(A) | MB |
| 16 | RMR0021 | SPACER(B) | MB |
| 17 | RMR0471 | SPACER(C) | MB |
| 18 | RMR0377 | P. C. B. SUPPORT | MB |
| 19 | RMR0421 | VFD HOLDER | MB |
| 20 | RFKGPJ28AE | FRONT PANEL ASS'Y | MB |
| 21 | RGU0435-K | MAIN BUTTON | |
| 22 | RGU0436-K | SUB KEY BUTTON | |
| 23 | RGU0437-K1 | POWER BUTTON | |
| 24 | XTBS26+8J | SCREW | |
| 25 | SHR328 | FASTENER | |
| 26 | XTB3+20JFZ | SCREW | |
| 27 | XTB3+35JFZ | SCREW | |
| 28 | XTB3+8JFZ | SCREW | |
| 29 | RQLS0022 | LASER CAUTION LABEL | MB |
| 30 | RMA0492 | EARTH PLATE | MB |
| | | | |
| | | LOADING UNIT PARTS | |
| | | | |
| 101 | 482244450603 | TRAY | MB |
| 102 | 482232550176 | GROMMET, CABLE | MB |
| 103 | 482232550177 | GROMMET, CABLE | MB |
| 104 | 482246692251 | PLATE | MB |
| 106 | 482235810115 | BELT, DRIVING | MB |
| 107 | 482252232359 | WHEEL, GEAR | MB |
| 108 | 482253251518 | RING, RUBBER | MB |
| 109 | 482240261081 | GUIDE | MB |
| 111 | 482240261132 | GUIDE | MB |
| 112 | 482252890638 | ROLLER | MB |
| 113 | 482249251902 | SPRING, COMPRES. | MB |
| 114 | 482246661587 | FOAM | MB |

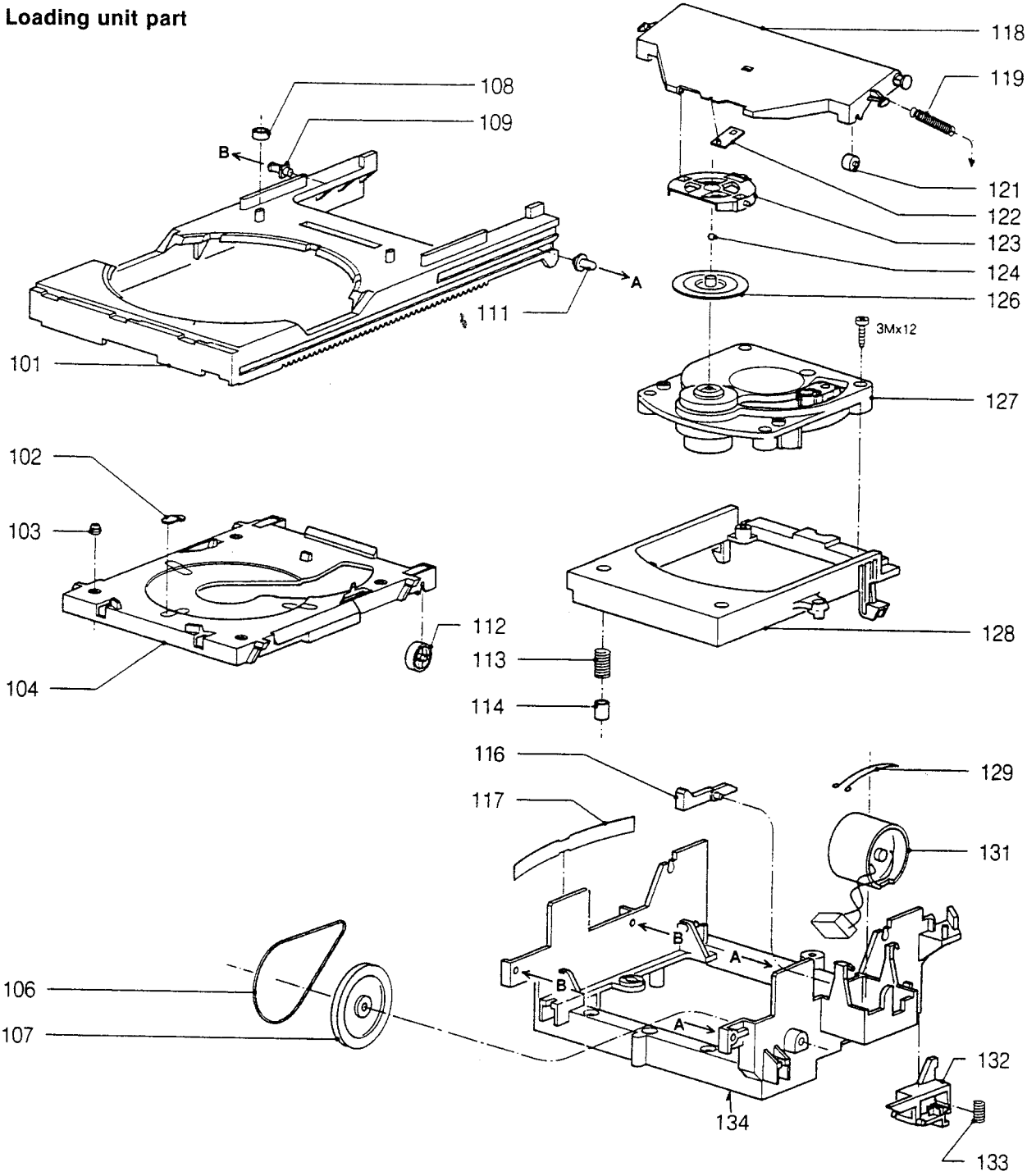
| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 116 | 482240261107 | LEVER | MB |
| 117 | 482249263659 | SPRING, BLADE | MB |
| 118 | 482244460568 | LID | MB |
| 119 | 482249232883 | SPRING, TENSION | MB |
| 121 | 482252890639 | ROLLER | MB |
| 122 | 482246692257 | PLATE | MB |
| 123 | 482240261207 | HOLDER | MB |
| 124 | 482252040177 | BALL | MB |
| 126 | 482253080503 | RING, PRESSURE | MB |
| 127 | 482269130209 | OPTICAL PICKUP UNIT | MB |
| 128 | 482240261196 | SUPPORT | MB |
| 129 | 482249263746 | SPRING, CLAMPING | MB |
| 131 | 482236120998 | MOTOR | MB |
| 132 | 482240250244 | BRACKET | MB |
| 133 | 482249251935 | SPRING, COMPRES. | MB |
| 134 | 482246450715 | CHASSIS | MB |
| | | | |
| | | PACKING MATERIAL | |
| | | | |
| P1 | RPG0776 | PACKING CASE | MB |
| P2 | RPN0430 | CUSHION | MB |
| P3 | RMR0024 | LOCK SHAFT | MB |
| P4 | RQCA0059 | LOCK CAUTION SHEET | MB |
| P5 | XZB60X60A01 | PROTECTION BAG (UNIT) | |
| P6 | XZB23X35C03 | POLYETHYLENE BAG(F. B.) | |
| P7 | XZB26X17C03 | POLYETHYLENE BAG(CORD) | |
| P8 | RPH0026 | PROTECTION SHEET | |
| | | | |
| | | ACCESSORIES | |
| | | | |
| A1 | RQF0873 | INSTRUCTION MANUAL ASS'Y | (E) MB |
| A1 | RQF0874 | INSTRUCTION MANUAL ASS'Y | (EB) MB |
| A1 | RQF0875 | INSTRUCTION MANUAL ASS'Y | (EG) MB |
| A1-1 | RFKSPJ28AE | INSTRUCTION MANUAL | (E) MB |
| A1-1 | RQT0783-B | INSTRUCTION MANUAL | (EB) MB |
| A1-1 | RQT0784-D | INSTRUCTION MANUAL | (EG) MB |
| A1-2 | RQA0013 | GUARANTEE CARD | |
| A1-3 | RQCB0169 | SERVICE SHOP LIST | |
| A2 | SJA187 | AC POWER SUPPLY CORD | (E, EG) ⚠ |
| A2 | SJA188 | AC POWER SUPPLY CORD | (EB) ⚠ |
| A3 | SJP2249-3 | STEREO CONNECTION CABLE | |
| A4 | SJP2257T | L-TYPE CABLE | |

# ■ EXPLODED VIEWS

- **Cabinet and chassis parts**



## • Loading unit part

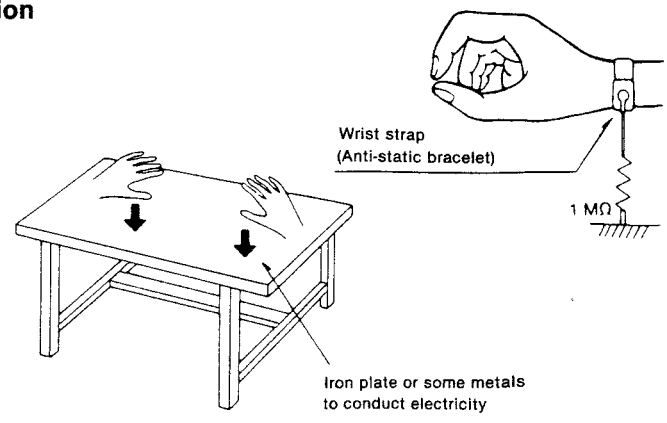



## • Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

**Caution:**

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the optical pickup.



SL-PJ28A
SL-PJ28A

| Ref. No. | Part No. |
|---|---|
| | |
| | |
| | |
| 1 | RKM0153-K |
| 2 | SNE2129-1 |
| 3 | XTBS3+8JFZ1 |
| 4 | EYF52BC |
| 5 | EYF52BC |
| 6 | RJS1A4802-B |
| 6 | RJS1A4902-B |
| 7 | SJS9236 |
| 8 | REX0007 |
| 9 | REX0285 |
| 10 | RGK0326-K |
| 11 | RFKHPJ28AE |
| 11 | RFKHPJ28AEB |
| 12 | RJS1A4802-A |
| 12 | RJS1A4902-A |
| 13 | RKA0042B |
| 14 | RFKJPJ28AE |
| 14 | RMK0115 |
| 15 | RMR0020 |
| 16 | RMR0021 |
| 17 | RMR0471 |
| 18 | RMR0377 |
| 19 | RMR0421 |
| 20 | RFKGPJ28AE |
| 21 | RGU0435-K |
| 22 | RGU0436-K |
| 23 | RGU0437-K1 |
| 24 | XTBS26+8J |
| 25 | SHR328 |
| 26 | XTB3+20JFZ |
| 27 | XTB3+35JFZ |
| 28 | XTB3+8JFZ |
| 29 | RQLS0022 |
| 30 | RMA0492 |
| | |
| | |
| | |
| 101 | 482244450603 |
| 102 | 482232550176 |
| 103 | 482232550177 |
| 104 | 482246692251 |
| 106 | 482235810115 |
| 107 | 482252232359 |
| 108 | 482253251518 |
| 109 | 482240261081 |
| 111 | 482240261132 |
| 112 | 482252890638 |
| 113 | 482249251902 |
| 114 | 482246661587 |

# ■ RESISTORS & CAPACITORS

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)
*[MB] Indicates in Remarks columns parts that are supplied by MBV.

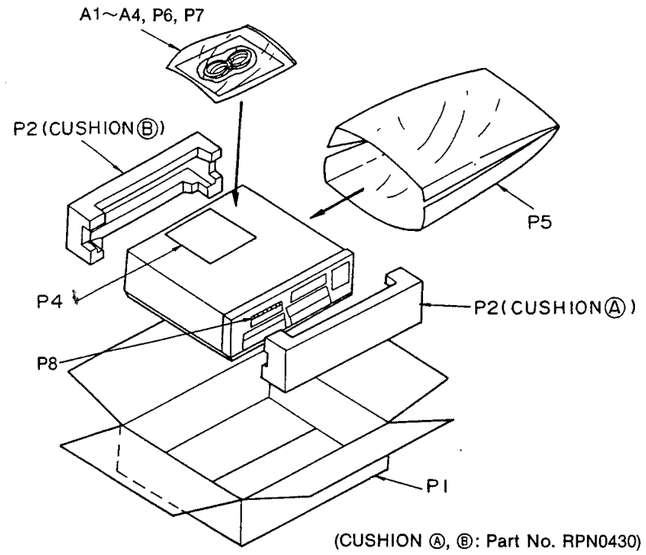
| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| | | |
| | | RESISTORS |
| | | |
| R11 | ERDS2TJ182 | 1/4W 1.8K |
| R12, 13 | ERDS2TJ102 | 1/4W 1K |
| R14 | ERDS2TJ103 | 1/4W 10K |
| R15 | ERDS2TJ822 | 1/4W 8.2K |
| R16, 17 | ERDS2TJ103 | 1/4W 10K |
| R20 | ERDS2TJ102 | 1/4W 1K |
| R23 | ERDS2TJ222 | 1/4W 2.2K |
| R24 | ERDS2TJ102 | 1/4W 1K |
| R25 | ERDS2TJ222 | 1/4W 2.2K |
| R51 | ERDS2TJ331 | 1/4W 330 |
| R52 | ERDS2TJ272T | 1/4W 2.7K |
| R53, 54 | ERDS2TJ472 | 1/4W 4.7K |
| R201 | ERDS2TJ100 | 1/4W 10 |
| R211 | ERDS2TJ223T | 1/4W 22K |
| R212 | ERDS2TJ472 | 1/4W 4.7K |
| R213, 214 | ERDS2TJ393T | 1/4W 39K |
| R215 | ERDS2TJ100 | 1/4W 10 |
| R216 | ERDS2TJ393T | 1/4W 39K |
| R217 | ERDS2TJ100 | 1/4W 10 |
| R221 | ERDS2TJ223T | 1/4W 22K |
| R222 | ERDS2TJ472 | 1/4W 4.7K |
| R223, 224 | ERDS2TJ393T | 1/4W 39K |
| R225 | ERDS2TJ100 | 1/4W 10 |
| R226 | ERDS2TJ393T | 1/4W 39K |
| R227 | ERDS2TJ100 | 1/4W 10 |
| R301 | ERDS2TJ182 | 1/4W 1.8K |
| R302 | ERDS2TJ823T | 1/4W 82K |
| R303 | ERDS2TJ104 | 1/4W 100K |
| R304 | ERDS2TJ471 | 1/4W 470 |
| R315 | ERDS2TJ104 | 1/4W 100K |
| R351 | ERDS2TJ103 | 1/4W 10K |
| R352 | ERDS2TJ104 | 1/4W 100K |
| R353 | ERDS2TJ123 | 1/4W 12K |
| R354 | ERDS2TJ104 | 1/4W 100K |
| R355, 356 | ERDS2TJ333 | 1/4W 33K |
| R357 | ERD25FJ6R8 | 1/4W 6.8 ⚠ |
| R401 | ERDS2TJ104 | 1/4W 100K |
| R402 | ERDS2TJ101 | 1/4W 100 |
| R403 | ERDS2TJ103T | 1/4W 10K |
| R411, 412 | ERDS2TJ472 | 1/4W 4.7K |
| R423 | ERDS2TJ122 | 1/4W 1.2K |
| R431, 432 | ERDS2TJ223 | 1/4W 22K |
| R433 | ERDS2TJ104 | 1/4W 100K |
| R434 | ERDS2TJ224T | 1/4W 220K |
| R435 | ERDS2TJ104 | 1/4W 100K |
| R436 | ERDS2TJ224T | 1/4W 220K |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| R437, 438 | ERDS2TJ223 | 1/4W 22K |
| R601 | ERDS2TJ100 | 1/4W 10 |
| R801, 802 | ERDS2TJ472 | 1/4W 4.7K |
| R803-808 | ERDS2TJ473 | 1/4W 47K |
| R809, 810 | ERDS2TJ222 | 1/4W 2.2K |
| R811, 812 | ERDS2TJ242 | 1/4W 2.4K |
| R819, 820 | ERDS2TJ821T | 1/4W 820 |
| R821, 822 | ERDS2TJ472 | 1/4W 4.7K |
| R823, 824 | ERDS2TJ181T | 1/4W 180 |
| R825, 826 | ERDS2TJ102 | 1/4W 1K |
| R831, 832 | ERDS2TJ470 | 1/4W 47 |
| R833 | ERDS2TJ472 | 1/4W 4.7K |
| R834 | ERDS2TJ561T | 1/4W 560 |
| R837, 838 | ERDS2TJ100T | 1/4W 10 |
| R840 | ERDS2TJ181T | 1/4W 180 |
| R851 | ERDS2TJ471 | 1/4W 470 |
| R854 | ERDS2TJ472 | 1/4W 4.7K |
| | | |
| | | CAPACITORS |
| | | |
| C1, 2 | ECFTD103KXL | 50V 0.01U |
| C10 | ECFR1E104ZF5 | 25V 0.1U |
| C11-13 | ECEA1CU102 | 16V 1000U |
| C14, 15 | ECEA0JK470 | 6.3V 47U |
| C16 | ECEA1EU101 | 25V 100U |
| C17, 18 | ECEA1HU101 | 50V 100U |
| C19 | ECEA1CK101 | 16V 100U |
| C51 | ECEA0JK220B | 6.3V 22U |
| C201, 202 | ECBT1C103NS5 | 16V 0.01U |
| C203 | ECEA0JK470 | 6.3V 47U |
| C204 | ECFR1E104ZF5 | 25V 0.1U |
| C301 | ECBT1C103NS5 | 16V 0.01U |
| C302 | ECBT1H270J5 | 50V 27P |
| C303, 304 | ECFR1E104ZF5 | 25V 0.1U |
| C305 | ECBT1H102KB5 | 50V 1000P |
| C306 | ECFR1E223KB | 25V 0.022U |
| C307 | ECQV1H474JZ3 | 50V 0.47U |
| C308 | ECBT1H102KB5 | 50V 1000P |
| C309 | ECFR1E104ZF5 | 25V 0.1U |
| C312 | ECBT1C103NS5 | 16V 0.01U |
| C351 | ECBT1H102KB5 | 50V 1000P |
| C401 | ECFR1E104ZF5 | 25V 0.1U |
| C402 | ECEA0JK470 | 6.3V 47U |
| C403 | ECEA0JU102 | 6.3V 1000U |
| C404 | ECFR1E104ZF5 | 25V 0.1U |
| C801, 802 | ECBT1H102KB5 | 50V 1000P |
| C803, 804 | ECEA1CK220 | 16V 22U |
| C805-808 | ECBT1H101JY | 50V 100P |
| C813, 814 | ECEA1CKN220B | 16V 22U |

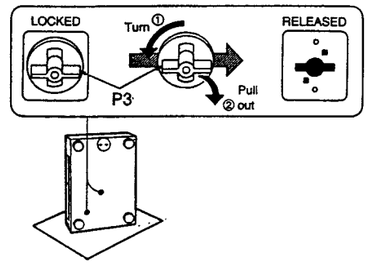
| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| C815, 816 | ECBT1H102KB5 | 50V 1000P |
| C817 | ECFR1E104ZF5 | 25V 0.1U |
| C831, 832 | ECEA0JU331B | 6.3V 330U |
| C833, 834 | ECFR1E104ZF5 | 25V 0.1U |
| C838 | ECBT1H5R6K5 | 50V 5.6P |
| C840 | ECBT1H5R6K5 | 50V 5.6P |
| C841 | ECEA0JK101 | 6.3V 100U |
| C842 | ECFR1E104ZF5 | 25V 0.1U |
| C844 | ECBT1H270J5 | 50V 27P |
| C851 | ECEA0JU471 | 6.3V 470U |
| | | |
| | | <SERVO P.C.B.> |
| | | RESISTORS |
| | | |
| R3501 | 482211652426 | 1/2W 4.7K [MB] |
| R3502 | 482211190214 | 1/8W 100K [MB] |
| R3503 | 482211130499 | 1/3W 4.7 [MB] |
| R3504 | 482211130499 | 1/3W 4.7 [MB] |
| R3505 | 482211190253 | 1/8W 12K [MB] |
| R3506 | 532211190091 | 1/8W 100 [MB] |
| R3507 | 482211190248 | 1/8W 2.2K [MB] |
| R3508 | 482211190512 | 1/8W 24K [MB] |
| R3509 | 482211190572 | 1/8W 5.6K [MB] |
| R3510 | 482211190249 | 1/8W 10K [MB] |
| R3521 | 482211190178 | 1/8W 220 [MB] |
| R3522 | 482211130515 | 1/3W 18 [MB] |
| R3523 | 482211130511 | 1/3W 12 [MB] |
| R3524 | 532211190091 | 1/8W 100 [MB] |
| R3530 | 482211190543 | 1/8W 47K [MB] |
| R3531 | 482211190344 | 1/8W 15K [MB] |
| R3533 | 532211190268 | 1/8W 5.1K [MB] |
| R3534 | 482211190197 | 1/8W 220K [MB] |
| R3535 | 482211653081 | 3/5W 12K [MB] |
| R3540 | 482211652858 | 3/5W 4.7 [MB] |
| R3541 | 482211190544 | 1/8W 6.8K [MB] |
| R3542 | 482211190124 | 1/8W 82 [MB] |
| R3543 | 482211190544 | 1/8W 6.8K [MB] |
| R3544 | 482211130483 | 1/3W 1 [MB] |
| R3545 | 482211130483 | 1/3W 1 [MB] |
| R3550 | 482211190248 | 1/8W 2.2K [MB] |
| R3551 | 482211690417 | 1/8W 150K [MB] |
| R3552 | 482211190171 | 1/8W 820 [MB] |
| R3554 | 482211690421 | 1/8W 2K [MB] |
| R3555 | 482211190251 | 1/8W 22K [MB] |
| R3560 | 482211191494 | 1/8W 11K [MB] |
| R3561 | 482211690417 | 1/8W 150K [MB] |
| R3562 | 482211652845 | 3/5W 120K [MB] |
| R3563 | 482211190573 | 1/8W 56K [MB] |
| R3564 | 482211191495 | 1/8W 160K [MB] |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| R3565 | 482211652354 | 1/2W 27 [MB] |
| R3566 | 482211190186 | 1/8W 22 [MB] |
| R3567 | 482211652478 | 1/2W 82K [MB] |
| R3568 | 482211190161 | 1/8W 470K [MB] |
| | | |
| | | CHIP JUMPER(S) |
| | | |
| R3801 | 482211190163 | JUMPER [MB] |
| R3802 | 482211190163 | JUMPER [MB] |
| | | |
| | | CAPACITORS |
| | | |
| C2501 | 482212233147 | 50V 0.022U [MB] |
| C2502 | 482212440433 | 25V 47U [MB] |
| C2503 | 482212233147 | 50V 0.022U [MB] |
| C2504 | 482212231727 | 63V 470P [MB] |
| C2505 | 482212440433 | 25V 47U [MB] |
| C2506 | 482212233104 | 63V 0.1U [MB] |
| C2507 | 482212231644 | 63V 2200P [MB] |
| C2508 | 532212142491 | 100V 0.047U [MB] |
| C2509 | 482212231772 | 50V 47P [MB] |
| C2510 | 482212232442 | 50V 0.01U [MB] |
| C2511 | 482212231746 | 50V 1000P [MB] |
| C2513 | 482212142245 | 63V 0.22U [MB] |
| C2514 | 482212151252 | 100V 0.47U [MB] |
| C2515 | 482212231746 | 50V 1000P [MB] |
| C2520 | 482212231965 | 63V 220P [MB] |
| C2521 | 482212422027 | 2.5V 47U [MB] |
| C2530 | 482212151321 | 63V 8200P [MB] |
| C2531 | 482212151321 | 63V 8200P [MB] |
| C2532 | 482212440272 | 16V 33U [MB] |
| C2534 | 532212142661 | 63V 0.33U [MB] |
| C2535 | 532212231848 | 63V 0.033U [MB] |
| C2536 | 532212231848 | 63V 0.033U [MB] |
| C2537 | 482212142245 | 63V 0.22U [MB] |
| C2538 | 482212142245 | 63V 0.22U [MB] |
| C2540 | 482212441583 | 50V 0.68U [MB] |
| C2541 | 482212233147 | 50V 0.022U [MB] |
| C2542 | 482212233147 | 50V 0.022U [MB] |
| C2543 | 482212440196 | 16V 220U [MB] |
| C2544 | 482212440196 | 16V 220U [MB] |
| C2545 | 482212233104 | 63V 0.1U [MB] |
| C2546 | 482212233104 | 63V 0.1U [MB] |
| C2552 | 482212143526 | 47UF 100N [MB] |
| C2560 | 482212231784 | 50V 4700P [MB] |
| C2561 | 482212151252 | 100V 0.47U [MB] |
| C2562 | 532212142661 | 63V 0.33U [MB] |
| C2563 | 482212233104 | 63V 0.1U [MB] |
| C2625 | 482212231765 | 50V 100P [MB] |
| C2701 | 482212233147 | 50V 0.022U [MB] |
| | | |
| | | |

# ■ PACKING



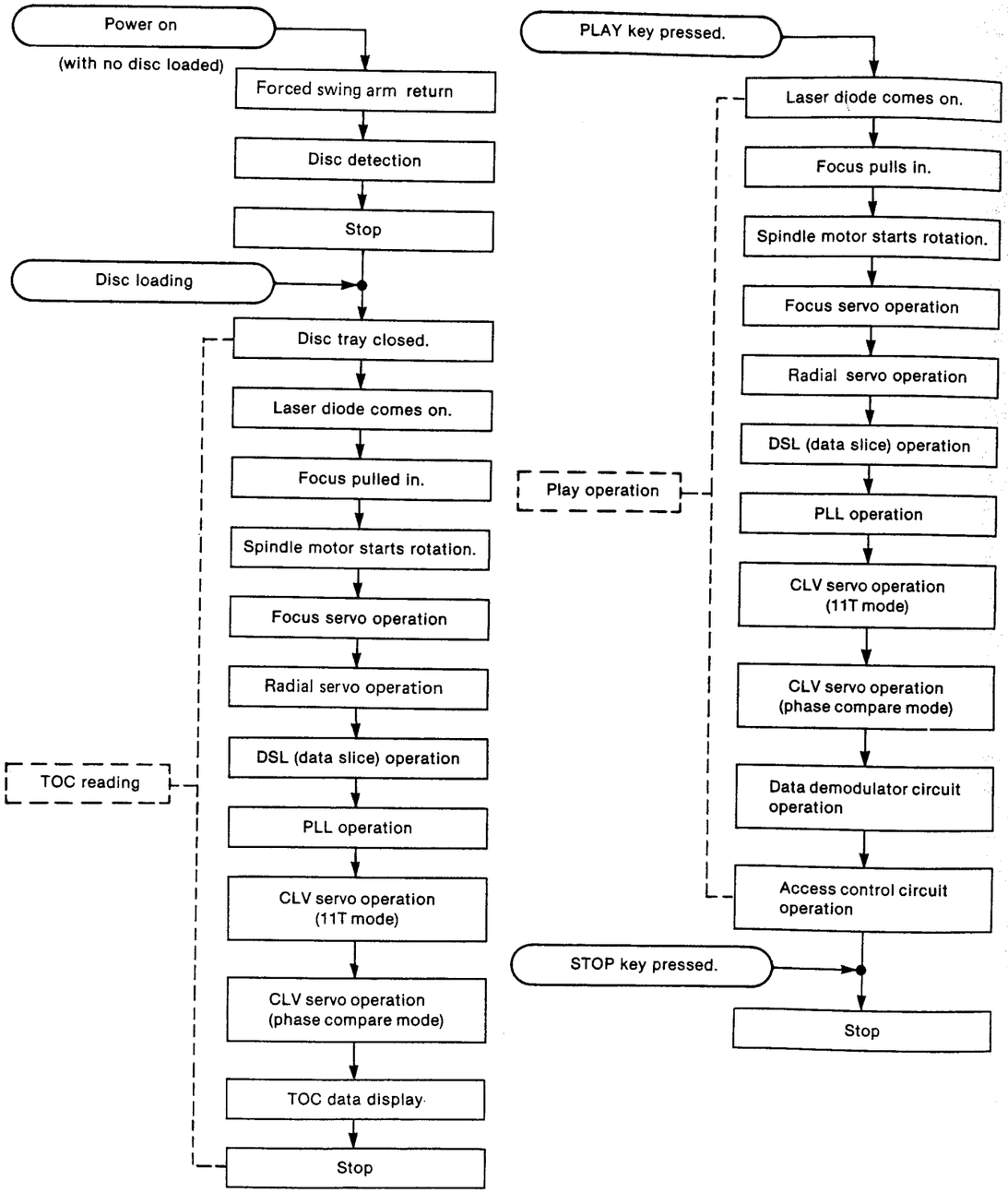

(CUSHION Ⓐ, Ⓑ: Part No. RPN0430)



## ■ TROUBLESHOOTING GUIDE

# SL-PJ28A Operation Sequence Check Sheet

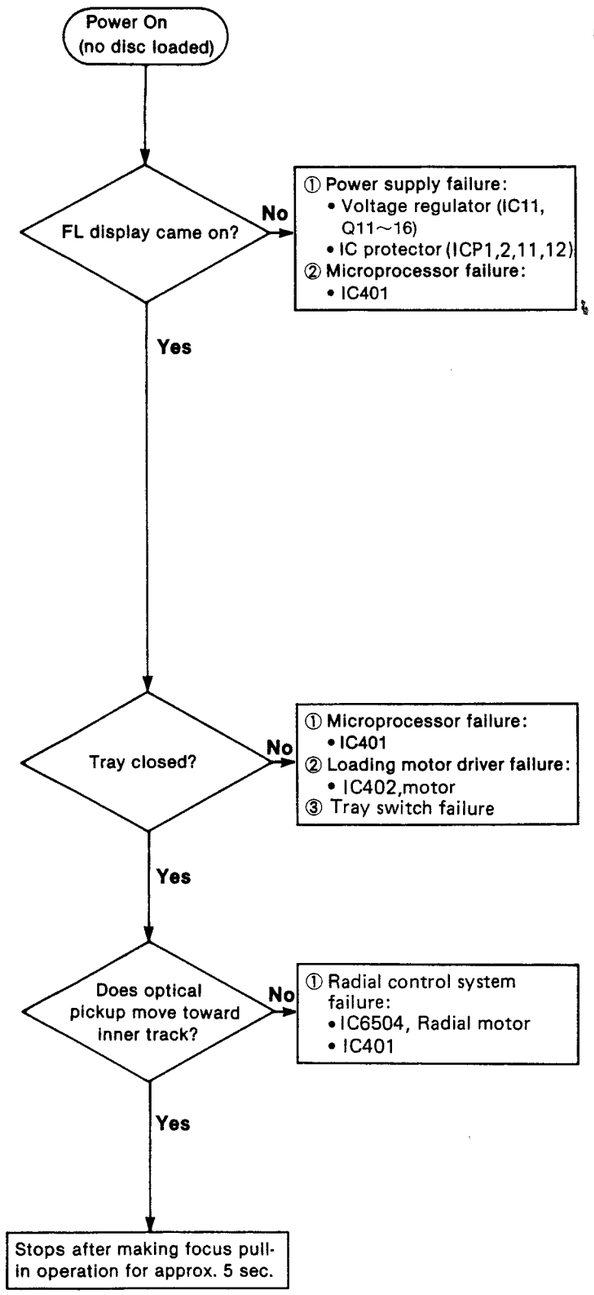
### Play Operation Sequence



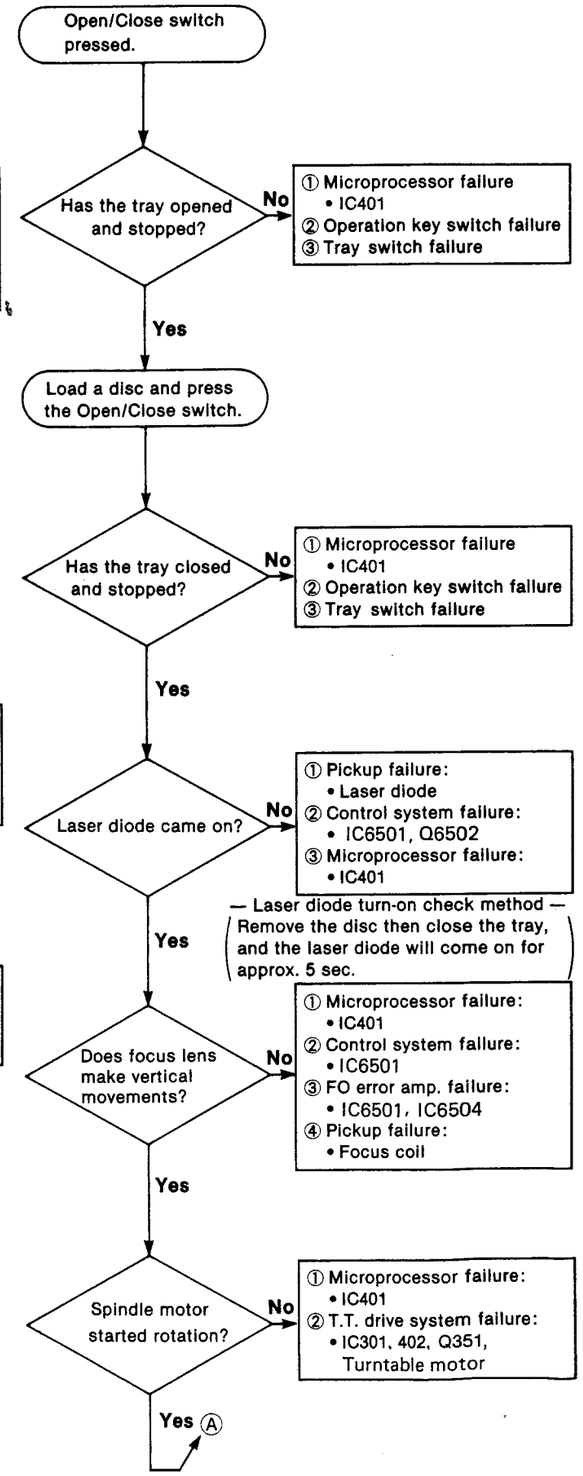


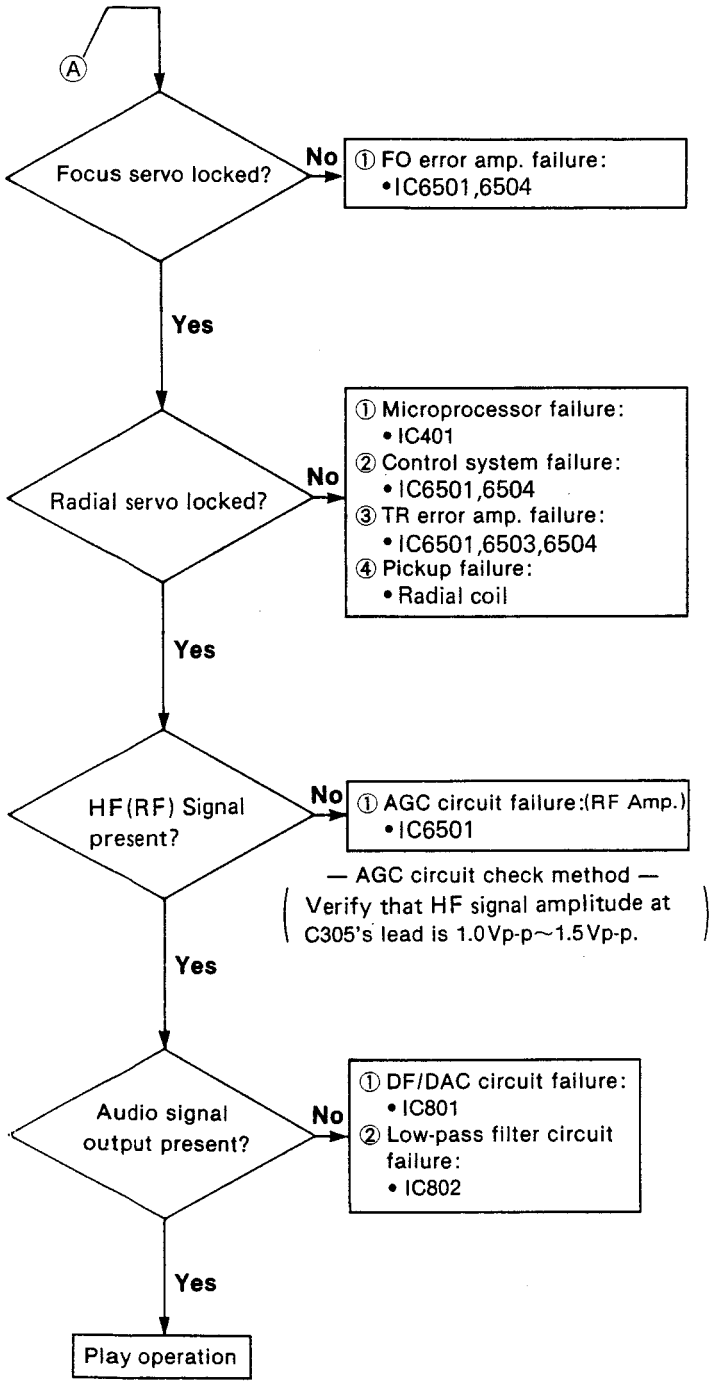



**(Operation Sequence Just After Power On)**




**(TOC Read Operation-PLAY Operation)**





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